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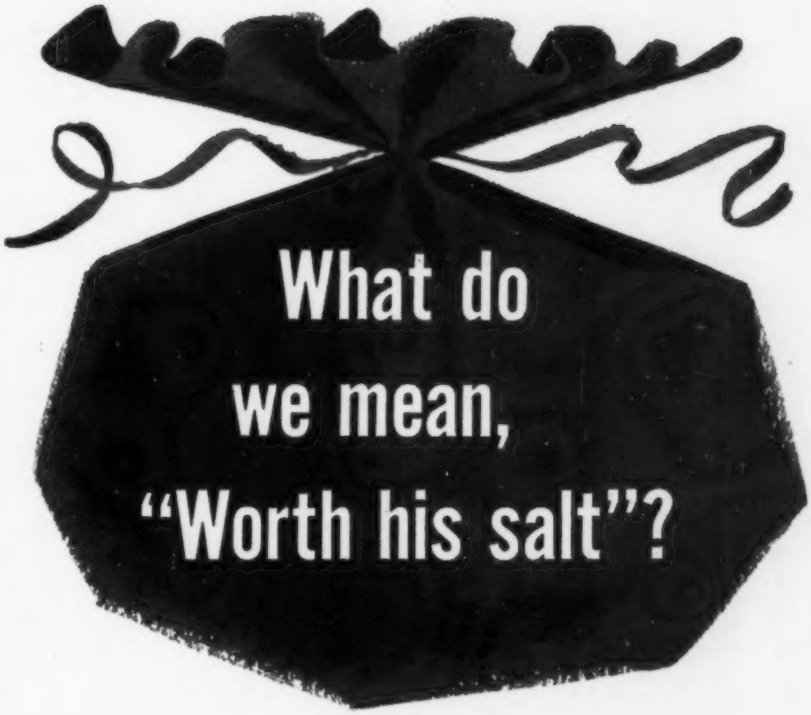

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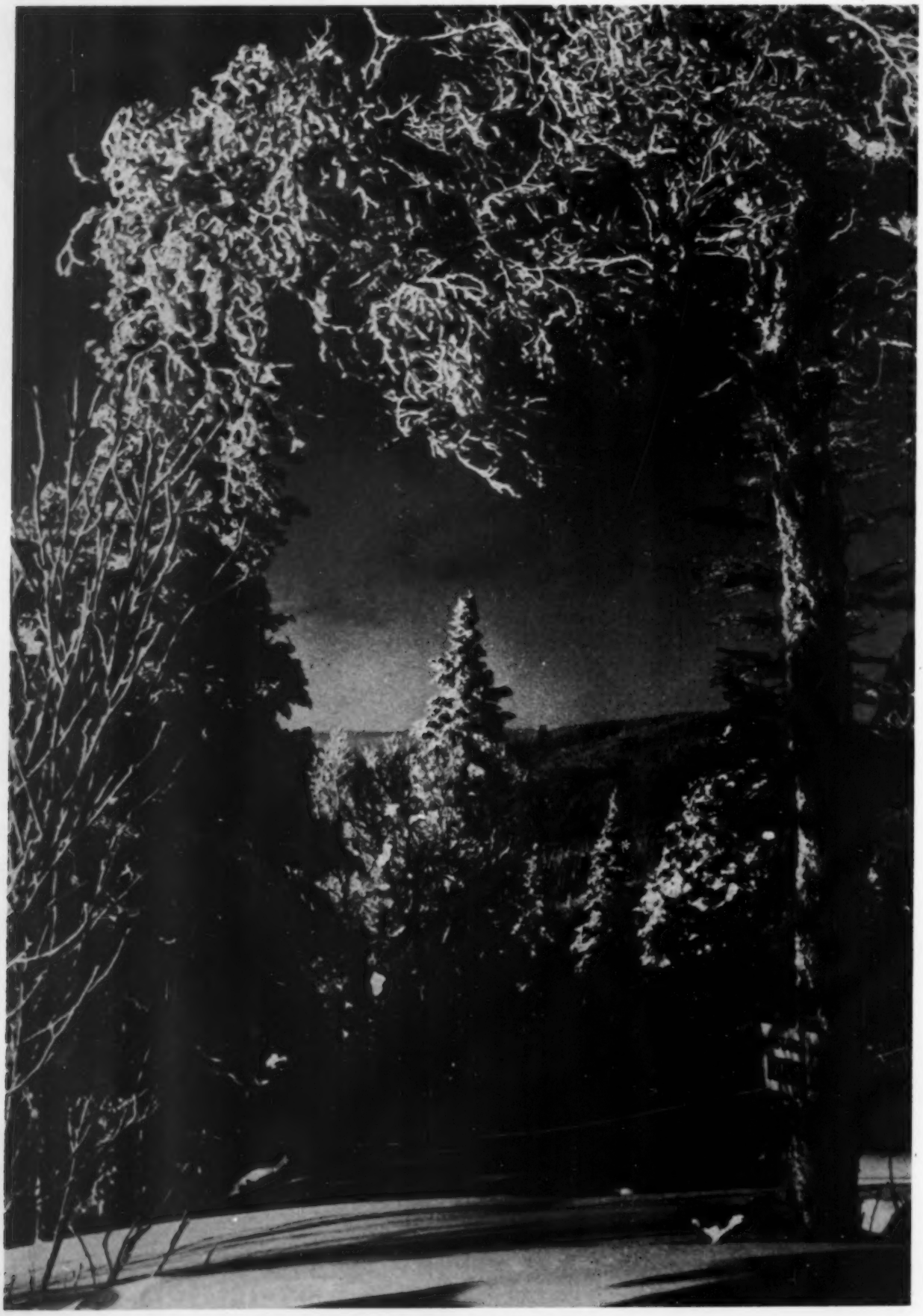

Winter in the Laurentian hills of Quebec.

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The stone wall not only fences the land but disposes of some of the loose stones scattered over formerly glaciated areas.

Good Fences Make Good Neighbours

by DOUGLAS LEECHMAN

Photographs by Richard Harrington unless otherwise credited

THERE is a general opinion among men who work on the land that good fences mean good farmers and that it is the shiftless farmer who lets his fences fall into disrepair. One old timer is quoted as having said: "Good and secure fences are better than a hot toddy, or all the soporific drugs of Turkey or Arabia, to sleep upon; you not only know where your cattle are, you know where they are not."

There is no telling now where or when the building of fences first originated. It may have been to protect a camp against wild animals, just as a boma is built today on the African veldt for the same reason. It is clear enough that as soon as the domestication of cattle began some means of confining them, presumably by means of a fence or a wall, became necessary. In ancient Egypt walls of sun-dried mud surrounded the gardens and small fields and, doubtless, wooden fences have long been used wherever suitable timber was available.

The Indians of North America, from one end of the forested area to the other, used hunting fences, built in a rather casual way of whatever happened to be most convenient, which stretched sometimes for miles. These were intended to lead big game, such as moose and deer, in a desired direction, either to a circular corral from which they could not escape, or past gaps in the fence where slip nooses were set to catch those animals which attempted to break

through at these points. Remains of these hunting fences are still to be seen in the interior of British Columbia, and one was built to lead caribou towards a hunger-stricken Indian village near Atlin within the last two generations.

Another type of "hunting fence" is used in the construction of fish-traps, which are still found in many parts of Canada, used by both whites and Indians.

Fences have been built for a variety of reasons, and occasionally for no good reason at all, except that it is the custom to put up a fence. Among the more logical uses of fences are: the marking of boundaries of land ownership; the restraint of animals, wild or domestic, which are to be kept in or kept out; to secure privacy and seclusion, as do many city fences and hedges; and to improve the appearance of a piece of property.

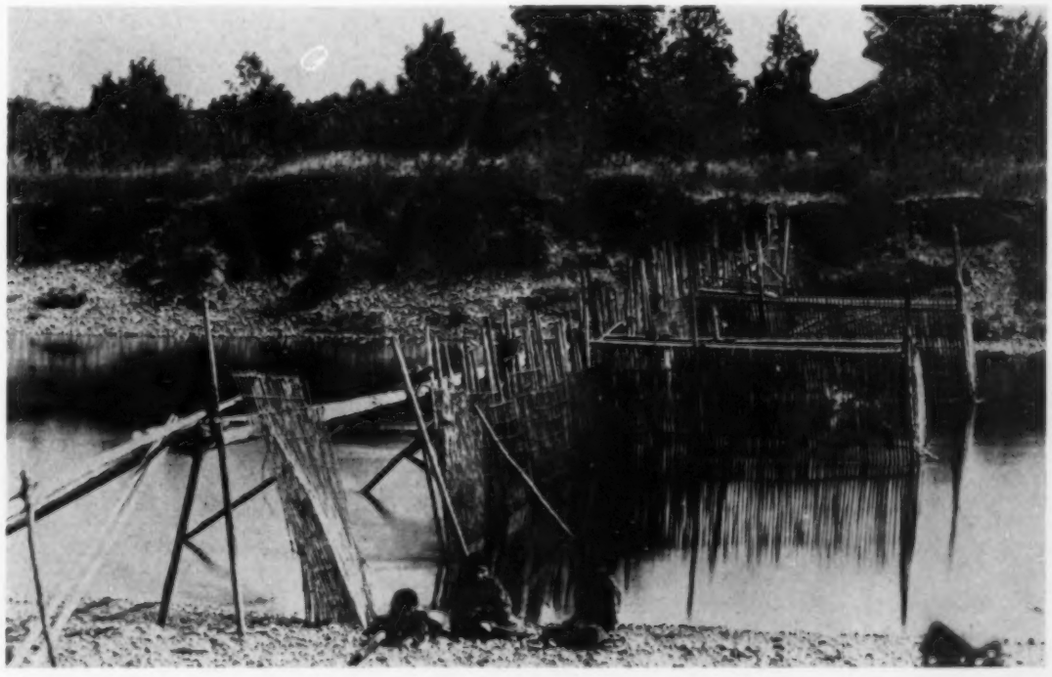
There seems often to be a strong sense of ownership involved in the building of a fence. In fact, the word itself would suggest this, for it is an abbreviation of "defence", and its function is implied by its name.

Boundary marking must be as old a human trait as the erection of fences, perhaps older. The Romans made quite a party out of the Terminalia celebrations on the 23rd of February, the last day of the old Roman year. The owners of adjacent properties met at the terminus or boundary stone, which they hung with garlands; they erected an altar on which were laid wheat and cakes, wine and honey, and they sacrificed a lamb or a sucking pig. Songs to the god Terminus were sung and there was general merry-making among the slaves and servants of the landlords.

They still "beat the bounds" in many an English village, perambulating the parish boundaries on Ascension Day or during the following week. The clergy and church-wardens, accompanied by a crowd of boys, literally beat the boundary stones with green wands and sometimes the boys themselves are whipped or bumped on the stones so that they shall remember their precise location for the rest of their lives.

Where the land borders on the river, French-Canadian farms which have been inherited by, and divided among, numerous sons, are divided into ever-narrowing strips resulting in a series of long and very slender fields, each with its boundaries carefully marked out by fences.

The variety of fences in existence is surprising. In the New England States alone more than fifty different types were recorded in the 1870s and out West there were a good many more. Some of the types listed are known today only by name and no description of them exists.



A Salish Indian fish-trap in southern British Columbia. One of the earliest uses of fencing.
National Museum

A stump (or root) fence, built when stumps were pulled some years after first clearing the land.

In Eastern Canada in pioneer days, most of the land taken up by the settlers was covered with a heavy stand of timber, which was at once a great advantage and a serious hindrance. Before a crop could be sown, a field had to be cleared and this was a slow, laborious, and expensive undertaking. In a week or so, a good man could clear no more than an acre single-handed, and that was much too slow. This situation was much improved by cooperation and land was often cleared by gangs of men working together in "bees".

The usual method of working was to fell the trees, slash out the small stuff and pile it on top of the logs, and then set fire to the piles, leaving the stumps in the ground, with enough space between them to sow a crop. In early summer, in a new settlement, hundreds of piles of burning brush and logs blazed and smoked all night and all day, and the men working at the "branding" as it was called were blistered and scorched, their clothes thick with soot and ashes.

The main thing was to get rid of the stuff; timber that would bring large sums of money today was ruthlessly burned. At first a little profit was gained by selling the ashes for making potash and pearl ash, but by the 1830s improvements in chemical processes took away even this minor source of revenue.

The brush fence, or deadwood fence as it was sometimes called, though the least efficient, was a direct product of the clearing of the land. It was simply a dense mass of brush and tree limbs piled in a windrow so as to form an impenetrable obstacle. Advantage was taken of any logs that might be lying in or near its proposed course and the fence often deviated from a straight line to take advantage of these aids to its construction. Large trees that had been left standing might be put to use too, serving as strong points in the fence and helping it to resist the wind. Sometimes it was necessary to weave the branches into each other and at other points props were used to strengthen it more.

There were disadvantages to a brush

fence, however, some of them very obvious. To begin with, it was a serious fire hazard. Then, it took more time and work to build than some other types of fence, though there was no other outlay needed than time and labour. Again, it seldom marked the boundaries of a property accurately, and it occupied a wide strip of land which might otherwise have been cultivated. Nevertheless, the brush fence was often the immediate answer to the pressing need for enclosing a field and it served the purpose well enough for a good many years. If it could be made of thorny brush, it was even more effective in restraining stock and wild game.

Picturesque stump fences are still to be found in some parts of Ontario, though they have disappeared from most sections; those that are still standing are perfectly effective. The stumps were the product of the first clearing of the land, usually at a bee, but it is not always realized that in pioneer days the stumps were usually left in the ground to rot for a number of years after the land was cleared. Some trees had roots that rotted enough to be pulled in a year or two, but others lasted for eight or nine years and resinous stumps, pine, for instance, much longer.

Philemon Wright, of Hull, Quebec, said: "In 1815 I employed some men in taking out the small stumps and roots, and levelling off the roughest places, as the roots began to decay according to the size of the stumps. Beech and rock maple stumps are much more easily taken out after the seventh year; pine, elm, basswood, and hemlock are less liable to rot, and therefore require about fifteen years before they can be taken out, especially those of the largest size".

Oxen and strong chains were usually needed for stump pulling, though a number of machines for the purpose were available. For fence building, the stumps were generally up-ended with the rosette of interlacing roots facing the outside of the property, the actual stump or trunk being inside the boundary. Gaps were filled in with brush and at times it was difficult to tell a stump fence from a brush fence.

One early style of stump fence, almost unknown today, consisted of sections of the trunks of the largest trees, cut in lengths of five or six feet and three or four feet thick

Wattle fence on the Avalon Peninsula of Newfoundland. A type of fence used extensively in Europe.

standing up in a row, and morticed to take three, four, or five rails. The logs were thick enough to stand alone and so required no post holes. They made a neat and effective fence, one was rid of the largest logs, and they took up but little space. Moreover, it could be built straight and was easily moved when necessary.

Another fence which used only material to be had on the first clearing of the land was the wicker fence, made with stakes driven firmly into the ground with willows or other pliant saplings woven in and out making horizontal courses. These fences are still to be seen out West and last pretty well if they are properly looked after. Sometimes they are built in a narrow embankment of earth a foot or two high which gives them a better drainage and delays the rotting of the stakes.

Probably the most familiar of all rural fences is the snake, worm, zigzag, or Virginia rail. This was once to be seen wherever there was enough timber to supply materials for its construction. It is probably a more carefully built variant of the brush fence and it is closely related to the hunting fences of Indian days, for in both the logs are often crossed and interlocked precisely as in the snake fence. There seems to be no history of this type of fence in Europe at any period, supporting the idea that it is of Indian origin.

The snake fence is mentioned quite early in the history of the New World. In 1685 the town of Salem entered in its minutes a record of the construction of a "new worme fence about the meeting house at Alloway's Creek", and the fact that it was referred to as a new one seems to suggest that an old fence had preceded it. Peter Kalm, the Finnish botanist, noticed snake fences in the New England States in 1749, and there are thousands of miles of them still to be seen in Ontario and other parts of Canada. Kalm thought they must be hard on the forests. He says: "If one considers that worm fences are crooked and require a greater quantity of material than if they were straight, that they must be replaced in a comparatively short time, and if one considers also the unbelievable quantity of wood burned day and night in every room in the house throughout the winter, one sees what punishment the forest is taking and wonders how it will look in thirty or fifty years."

Though there were several variations in construction, most forms of this fence were reasonably secure, especially if the angle at which the rails crossed was at least sixty degrees; otherwise they were easily pushed down by beasts or the wind. One difficulty was in keeping the top rail in place for, if not prevented, cattle could knock it off. In some parts of the West this problem is solved by wiring two heavy stones together and hanging one on each side of the fence with the wire passing over the top.

Few new snake fences are being built now.

A log corral, built on the snake fence principle, in British Columbia.

Cedar pole snake fence in Quebec. A wide strip of land is withheld from possible cultivation.

There are several objections to them, one being the width of the strip of land they withhold from cultivation, for they take up a strip six or eight feet wide round each field. One farmer reported that he had five and a half miles of snake fence on his land, which occupied five acres and prevented the use of nearly eleven.

Another objection to them is that they require a lot of wood which, even if it is available at all, could be put to better use. If the fence is ten rails high on a bed five feet wide, with rails eleven feet long, overlapped a foot at the angles, each panel will cover the equivalent of eight feet in the direct line of the fence. This takes six thousand six hundred rails to the mile. In many cases, of course, a fence six rails high was adequate.

Some authorities objected to the snake fence because weeds grew in profusion in the angles of the panels and it was hard to keep them clean. There are even records of farm hands having come to blows when trying to determine whose turn it was at the disagreeable task of hoeing the corners. Today this might not be thought so serious an objection, for those weedy corners afford shelter and nesting sites for small birds that do a lot to reduce insect pests. At the same time, the shade caused by the shrubs in the corners encouraged the rotting of the bottom rails, so much so that it was the practice in some districts to set an eight-inch stone under each angle to hold the bottom rail off the ground.

In spite of the work required, cutting, drawing, splitting rails, and the actual building of the fence, there were advantages to be considered too, among them the fact that no post holes need be dug and no nails bought. Again, the fence was movable and could be made to conform to new boundaries as the land was cleared. The fact that it was in such wide use is enough to show that it was one of the best and most economical fences known considering all relevant factors. In 1871, snake fences made up sixty per cent of all fencing in the United States.

In early days in Ontario, the snake fence was held to be an adequate and legal fence, and was accepted by the pound keeper and the fence viewer, two public officials who were concerned with the condition of fences. Louth Township in the County of Lincoln, Niagara District, decided on 2nd March, 1812, "It is agreed at this meeting that fences is to be Five Feet Six Inches high

The chock-and-log fence in which the logs, about fifteen feet or so in length, are supported at each end by chocks.

Douglas Leechman

and not to exceed four Inches Crevice for Four Rails high".

In Virginia and other places some snake fences were built with black walnut rails, valued in those days at fifteen dollars a thousand. There were fences of black walnut in Ontario too and during World War I some of these were bought for wood to make walnut stocks for rifles.

In this chock-and-log fence (left and above) the logs are held by additional supports.

Douglas Leechman

The stake-and-rider fence is a modification of, and a great improvement on, the snake fence which, as we have seen, was somewhat insecure unless the angle at which the panels met was reasonably acute. By adding two stakes at each intersection, and crossing the tops of them, a heavier rail could be laid in the angle thus formed, greatly strengthening the fence and holding everything secure. Thousands of miles of this type of fence have been built and there is much of it still in use. Even now it is being built in newly cleared areas. It has much to recommend it and is probably the best of all fences made entirely of local materials.

A chock-and-log fence was a definite improvement on the brush fence and required less work and less in the way of materials than did the snake fence. Comparatively slender logs, fifteen feet or so in length, were selected and these were supported at each end by "chocks", which were sections of slightly thicker logs, about three feet long. Each chock had two wide notches cut in it, deep enough to hold the logs, which were so laid that each end of each log was supported by a chock. Usually a fence four logs high was strong enough, and it was much nearer to straight than the snake fence and took up less room. The bottom chock was laid on the ground and the top

A post-and-rail fence protects the ploughland on this Quebec farm. The rails are laid between two posts standing side by side. NFB

log lay loose on the uppermost chock. These fences are still common in Western Canada and have been known there for many years. Peter Kalm noted them in Albany and Saratoga in 1749. One of their weak points is the danger of being destroyed by fire, but on the other hand they require no post holes and can easily be moved as needed.

A simple successor to the snake fence was the post-and-rail, which has itself gone through a series of evolutions. Examples seen at Germantown, Pennsylvania, in 1749 by Peter Kalm, one of the few men who has much to say about early fences in Canada or the United States, had the posts morticed to take the rails. This meant a lot of work, and one way of reducing it, farmers discovered, was to dig post holes large enough to take two posts standing side by side. Then the rails could be laid between the two posts, the tops of which were bound together by a withe or, later, a loop of wire, and so no mortices need be cut. Where rails were abundant, they were laid right on top of each other, without bothering to separate them.

The chief objection to this type of fence was the necessity of digging post holes, and another the rotting of the posts below ground. Some improvement could be gained by selecting specially durable wood, but if this had to be brought from a distance the extra cost was often more than the added length of life was worth. It was found that soaking the bottom of the posts in creosote increased their life about eight years, well worth the cost and trouble.

There was an odd variation of the post-and-rail fence in parts of eastern Pennsylvania, where slate is abundant. Slabs of

A variation of the post-and-rail fence in which the posts are morticed to take the rails.

Board fence of a type in common use today. NFB

One of the comparatively rare dog-le

slate, otherwise worthless, about six or seven feet long, two or three inches thick, and fifteen or so inches wide, were morticed to take rails, and used as fence posts. One would think that they would last for ever, but in actual practice, it was found, rain and frost soon caused them to shale off and deteriorate; though they certainly outlasted wooden posts, they would by no means last indefinitely.

The straight rail fence is used a great deal today. Posts are erected at suitable intervals and the rails are simply nailed into place. These fences have become practicable only since the invention of the wire nail; they were quite out of the question when nails were still cut by hand and therefore expensive. Such a fence requires a minimum of work and is reasonably effective, though a strong push is often enough to force a rail off.

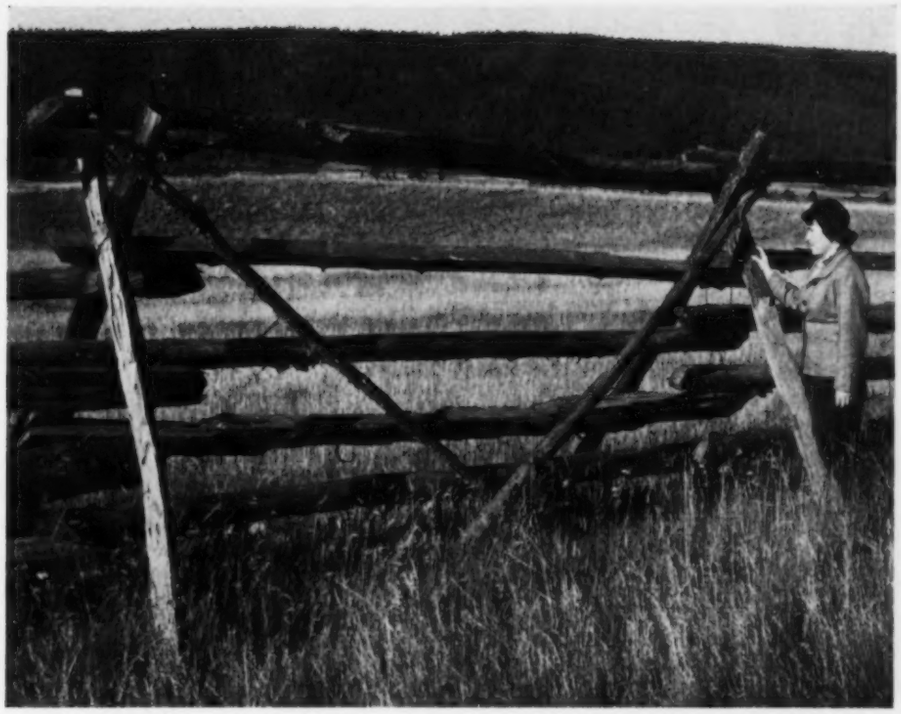
One of the strangest and least familiar of the rail fences is the dog-leg which has been recorded from Nova Scotia, New Brunswick, and Australia. It is a little difficult to describe, but its essential feature is a series of crossed posts, set in post holes, with rails laid in the crotches. The crossed posts follow the line of the fence, each pair being at right angles to it. A rail is laid on the ground at the foot of each pair of posts, then passes under the crotch of the next pair, and over the crotch of the third. It is a peculiar looking contraption and one feels a little in doubt as to how effective it can be. The fact that it has not been more widely adopted seems to argue that it is not very satisfactory, but in Australia they assure us it is sheep-proof.

The Russell fence has the unusual distinction of having been patented and Russell, the inventor, succeeded, in some cases at least, in collecting royalties from people who built fences on his model. It consists of pairs of crossed posts, set in post holes as in the stake-and-rider and the dog-leg, but the rails are hung from the crotches and from each other in wire loops. This makes a very strong fence with few rails and the work of repairing it is made much easier. If a rust proof wire is used, such a fence will stand for many years before it is in need of attention.

As long as timber was plentiful, there had been no difficulty in getting logs and rails to build fences with but, once the land had been stripped of its original forest cover, and when new and better fences were needed to replace the first crude constructions, a somewhat surprising question arose, "What are we going to use for fencing?"

By the 1850s, it had become a serious matter in the United States and to a lesser

ely rare log-leg fences, in New Brunswick.



In the Russell fence the rails are hung in wire loops.

extent in Canada, and soon began to take on the aspect of a national problem. People were complaining of the high cost of fencing land. They found that a man might buy a farm for a thousand dollars and then discover that it would cost him two thousand to fence it, and he could not do any farming till it was fenced, for straying beasts would ruin his crops. Often enough, the cost of fencing a property was more than the land, the crops, and all the cattle on it were worth, certainly more than a man just starting out in life could afford.

The United States government launched an investigation and made a complete survey of each state, county by county. This apparently was never published in full but a condensation of it appeared in the Annual Report of the U.S. Department of Agriculture for 1871. It showed that the total original cost of all the fences then in existence in the United States was $1,747,549,931, nearly one and three quarter billion dollars, just about as much as the national debt, a staggering sum for those days. The annual cost of repairs alone came to a hundred million dollars and the interest on the capital investment was even more. Two hundred and fifty million acres of land had been fenced and more than five million miles of fencing built, equivalent to nearly two hundred times round the earth at the equator.

It was obvious that the fencing problem had to be solved, but the solution evaded all who sought it. The cattle men and sheep ranchers had already found one answer.

Cowboys of the Chilcotin district, B.C., appreciate the uses of a Russell fence.

They saw that it was much cheaper to hire cowboys and shepherds and have them ride herd on the stock than it was to keep their flocks and herds fenced in. Moreover, a cowboy or a shepherd could do something to help an animal in difficulties or to avert a disaster, which was more than any fence could be counted on to do. This plan didn't suit the farmers, though, for the cattle that roamed the ranges broke in and devoured growing crops if the fences were not strong and there were long and bitter wrangles about "fencing in and fencing out". Was it the duty of the cattleman to restrain his stock, or was it the responsibility of the farmer to protect his own crops?

As settlement advanced towards the West, the problem grew ever more desperate. In the East, fencing materials had admittedly become scarce and expensive, but on the open prairies they were simply non-existent. Small quantities could be found in a few wooded bluffs and sheltered coulees, and this fact alone induced some settlers to locate near groves of trees, even though the soil there might be less fertile than elsewhere. Large areas went unsettled for a long time for the sole reason that a man could find no economical way of fencing his land. The same difficulty confronted the early settlers on the Canadian prairies.

In the first days of pioneering, men from the old countries of Europe often thought of the green hedges that surrounded the well-remembered fields of home, and many of them tried to establish hedges here. These were seldom a success and they proved quite ineffective in keeping roaming beasts out of the settlers' little gardens. Hedges were useful only in the more settled areas, in towns and on large country estates, and here they were valued more for their decorative effect than for any actual utility.

About 1850, however, when the fencing problem was beginning to look serious, numerous advocates of hedges made themselves heard. The idea of a living, self-maintaining and self-renewing fence had great appeal, especially in those areas where no fencing materials at all were to be had. Interest was aroused and soon there was a veritable "hedge mania" which did not subside till about 1880.

Many different plants were suggested as being suitable for hedges, some for certain climatic conditions only, while others were said to be good anywhere from the hottest

Neat wooden palings enclose an old house in the Ottawa area. Not a true "picket" fence, because the palings are not pointed.

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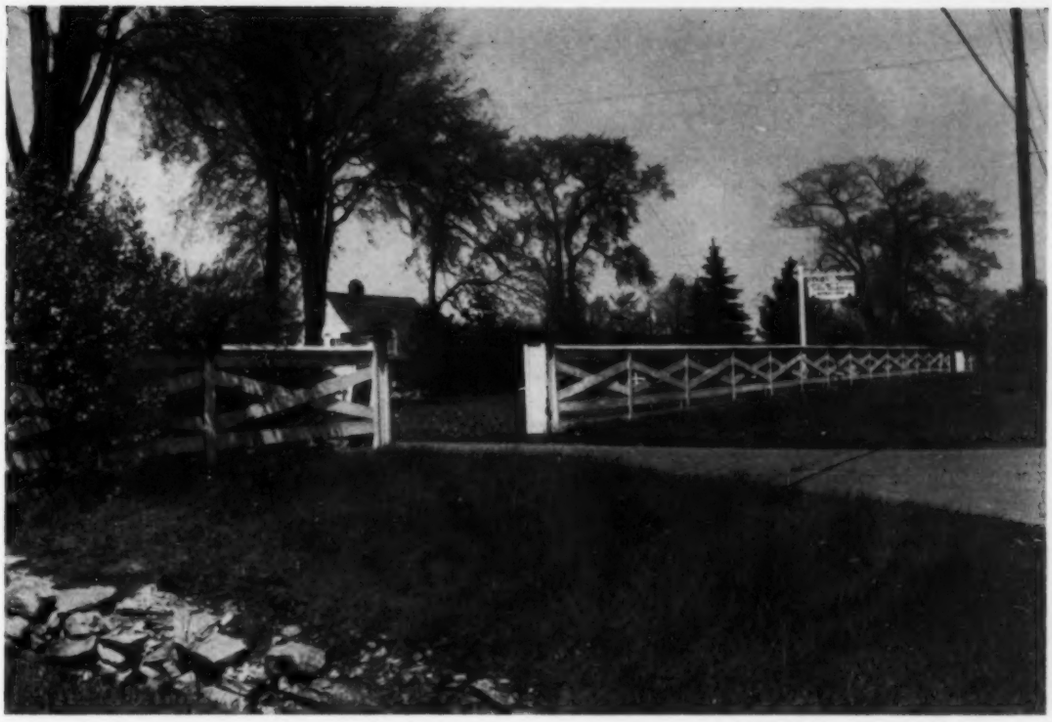


A modern, ornamental board fence, much used for enclosing valuable stock as the risk of injury is greatly reduced.
Douglas Leechman

deserts to the coldest prairies. Among the most popular were various thorny shrubs, such as the hawthorn, the thorn locust, and several kinds of wild rose. Willow was advocated for damp areas, and cactus or mesquite for the arid South.

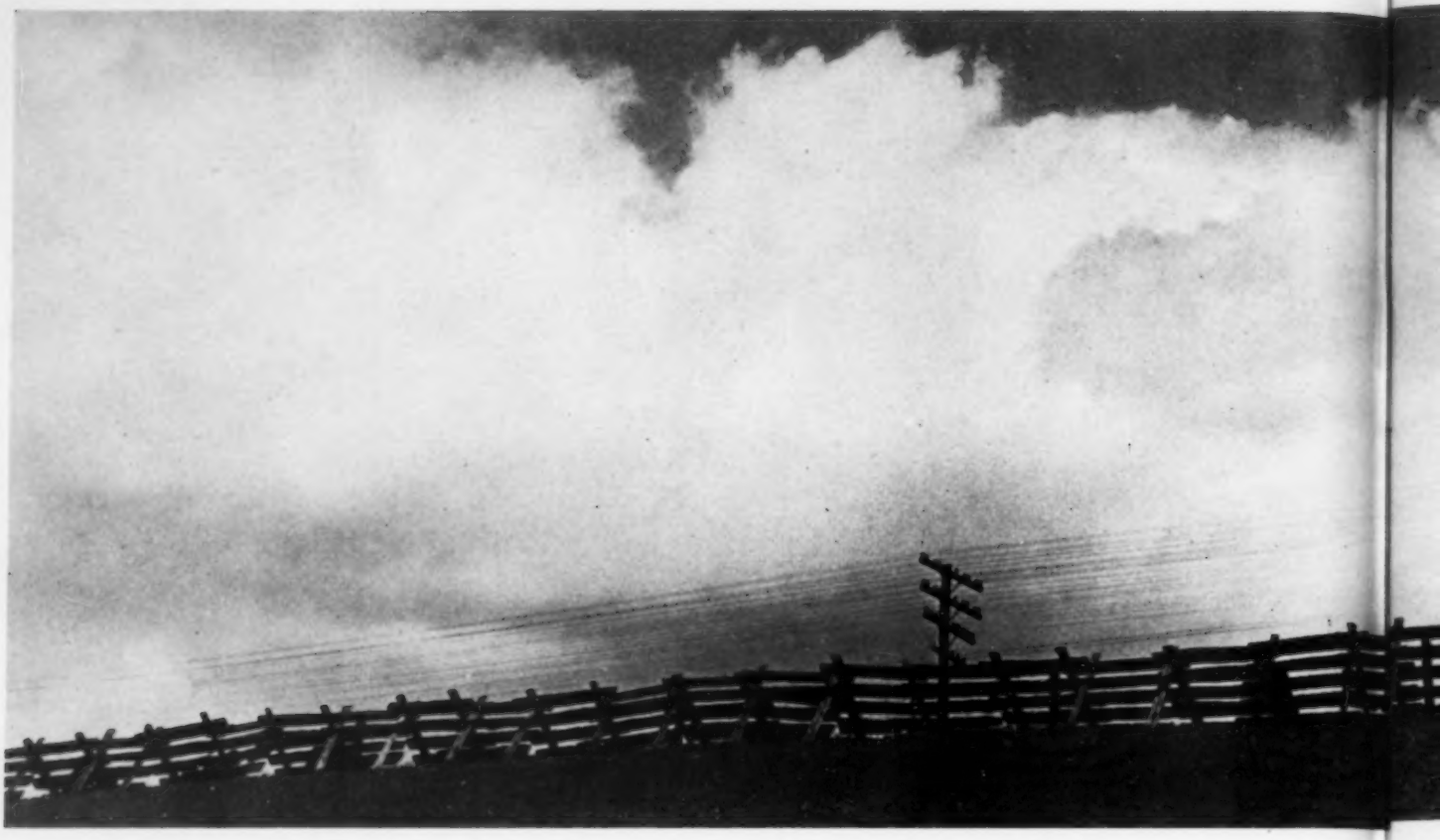
Only a few plants were tried on a large scale, among them the rose and hawthorn, and, most vigorously of all, the Osage orange, or *bois d'arc*, so called because the Indians used it for making their bows. Even today Osage orange is reckoned second only to yew as bow timber. This was one of the plants which was guaranteed by its advocates to be good anywhere. It would, they boasted, after four years' growth, make a hedge that would be "pig tight, horse high, and bull strong".

The Osage orange madness started slowly. In 1851 only four or five hundred bushels of seed were sold. In 1855 a single firm handled a thousand bushels. In 1860 ten thousand bushels were planted, producing three hundred million plants, enough for sixty thousand miles of hedge. In 1868, eighteen thousand bushels were sold. The claims for it became fantastic. It was everlasting, it cost almost nothing to plant, it cost even less to maintain, it was the real God-given hedge plant. All or some of this may have been true, but at the same time it was hard to establish, especially on dry land, and the hedge was of no use at all till it was four years old and that was no good to a farmer who wanted a strong and effective fence immediately.

Still the mania for hedges swept the country. The price of Osage orange seed went up to five dollars a pound. Machines were invented to extract the seed, to wash it, to plant it, and later to transplant it in a straight row. Firms were organized, willing to plant a hedge at so much a rod or a mile and see it well established and keep it in order for a year or two years or for ever, depending on what kind of a contract they could get the farmer to sign.

Nowhere did the hedges prove the success people had hoped, and the rage for them subsided even more suddenly that it had risen. Even today in some parts of the central states, especially Ohio, one may see long lines of rather straggly Osage orange trees, once the wonderful hedge from which so much had been expected.

One solution of the problem of fencing on the treeless prairies was the mud fence. This was not a new idea, for the mud fence or, to give it a more appropriate name, the sod fence, was already well known in the north of Ireland and, in all probability, in a good many other places too. It was not, one gathers, a thing of beauty; the expression "as ugly as a mud fence" is still heard



occasionally, and it must have been at one time an apt simile.

Ugly or not, it had definite advantages. First of all it could be built of materials right at hand and without any other expenditure than labour. Two parallel furrows were ploughed so that the sods turned over and lay side by side. Sods from adjacent furrows were carried by hand to this base and laid in position on top, taking care to break the joints and to taper the wall gradually towards the top. These fences or walls were generally built three and a half feet high and the top sods were laid with the grass up, so that it could continue to grow, reducing the erosion caused by the rain and protecting the wall.

Another advantage of the mud fence was that it made a good fire break, a strip of naked land six or eight furrows wide with a fire-proof wall running down the middle. Usually a deep furrow was run along each side of the fence after it was built, turning the soil so that it lay along the base. It may be that some of these structures still exist.

An obvious way out of the difficulty of

Barbed wire and stakes form this ranch fence in Alberta. The top wire, carried above the gateway, serves as a telephone line.

A sectional slab snow-fence in Manitoba. The snow-fence is usually set at a right-angle to the prevailing wind to control drifting.

procuring fencing material where none existed, and one that was tried extensively, was to use wire. Smooth wire fences had been built as early as 1810 but they had never been satisfactory in spite of the claim of one enthusiast that a good wire fence would "turn anything but a hog and even that if of any respectable breed". Actually, a smooth wire fence would not turn cattle, for they soon discovered that it would give if they pushed hard enough and they often carried away the fence posts in doing so. Moreover the first cost was high and the wire had to be kept painted or it soon rusted through, for galvanizing was not introduced commercially till 1837. In hot weather, it stretched and drooped, and in cold weather it contracted and snapped. Smooth wire fences had been pretty well abandoned as inefficient when the true solution of the problem was at last hit upon.

As with so many such things, when a number of men have all been earnestly seeking some invention that will produce a desired result, it is difficult, if not impossible, to determine which of them was actually the first to succeed. There is just such an argument as to who conceived the idea of barbed wire; the evidence seems to be that the best claim is that of J. F. Glidden, who made his first barbed wire in 1873 and sold the first lot of it in 1874. Other claimants appeared and several lawsuits ensued which dragged on for years at great expense. The records are all available for consultation in a special museum devoted to barbed wire, in Worcester, Massachusetts.

At any rate, it is certain that Glidden was one of the first to manufacture it and, once its advantages were realized, other firms quickly jumped into the game. In 1874, only five tons were produced, but in 1880 the production rose to 40,000 tons. Figures for 1951 show ten thousand tons manufactured in Canada and 240,000 tons in the United States.

One of the deciding factors was the

The invention of barbed wire revolutionized fencing. This material is quickly erected, lasts indefinitely, and is inexpensive.

availability of steel made by the then new Bessemer process. This method of making malleable steel from cast-iron, first announced in 1856 before the Royal Society, produced a steel wire of much higher tensile strength and at a much lower cost than before. It was excellent for making barbed wire.

The advantages of the new fencing material were obvious and important. First of all, it was amazingly cheap. Originally, the price at the factory was eighteen cents a pound, equivalent to about twenty cents a rod. In those days, the cost of building snake fencing with rails was about $1.75 a rod. Furthermore, the barbed wire fence withheld very little land from cultivation, and the thin wires threw a minimum of shadow on a crop, whereas hedges and some fences had kept long strips of crop in the shade for hours on end, delaying growth and ripening. Barbed wire was proof against high winds, for it offered no resistance and the posts were not rocked and racked. It was proof against cattle and wild beasts. It caused no snow drifts; it was quickly built, and it lasted indefinitely when well galvanized.

Again, unlike a hedge or some fences, it did not impede the view and the farmer could see what was happening on the other side of the fence. The old difficulty of slacking or snapping with temperature changes vanished, for the twisting of the two wires about each other enabled them to shrink or stretch. Such a fence could easily be moved and the top wire could be made to serve a telephone, thus keeping all parts of a large ranch in touch with the "big house". The famous Douglas Lake Cattle Ranch of the Nicola Valley in southern British Columbia has long used the top wire of the fence for the telephone.

Ideal as it seemed to be, there were also serious objections to barbed wire which for a time seemed almost unsurmountable. The worst, of course, was the risk of injury to stock. Cattle and horses, unfamiliar with barbed wire and not able to see it easily, were sometimes so badly cut that they had to be destroyed. Occasionally a herd of cattle would run full tilt into a barbed wire fence with disastrous results. Horses that had encountered barbed wire and survived the experience could often not be driven between two posts anywhere, fearing that wire might be strung between them. Now that cattle and horses are born into a world in which barbed wire is a common-place, this danger has almost disappeared.

Farther south, it was found inadvisable to use it, for even small wounds on horses or cattle could not heal before the scabworm fly laid its eggs in the open cut. For race horses and other valuable animals, barbed wire was out of the question and it was not suitable for close-knit fences for restraining turkeys, chickens, or pigs.

In spite of these disadvantages, its use spread like a prairie fire. Many a farmer tore down his old rail fences, cut them up into stove wood lengths, sold the wood in the city, and bought barbed wire with the proceeds. It meant the end of the open range

An example of dry-walling, with stones of various sizes.

A mixed fence in Ontario, consisting of a low stone wall surmounted by stake-and-woven-wire fencing.

and introduced the system of large enclosed pastures. Some cattlemen ran their wire round enormous areas whether they had legal right to them or not, fencing in water holes, and cutting off well-established roadways. The resentment of the small farmers was bitter and bands of "wire cutters" or "fence cutters" appeared, snipping wire almost as fast as it was put up. The war between the cattlemen and the nesters formed the basis for many a story of the Wild West and, in truth, more than a few men lost their lives in this strange civil war. Probably no other single invention of the nineteenth century had such a profound effect on the lives of people on the land as did barbed wire.

Woven wire fences had been tried at least as early as 1854. They were made in a variety of weights and weaves, but never established themselves firmly in popular esteem which is not surprising considering the disadvantages they suffered under, their rapid rusting unless painted, their liability to snap in cold weather, and their comparatively high cost.

As with the barbed wire fence, the Bessemer steel process cleared up most of these objections and by the 1880s woven wire fences were again being made in many styles and patterns. Barbed wire was not suitable for use in cities and densely settled areas and also it was not able to restrain small animals unless so closely spaced and posted as to be prohibitive in cost. Woven wire fences, plain and ornamental, solved these problems effectively and today, woven wire, galvanized either before or after weaving, or welded at the cross points, is used extensively with complete satisfaction.

The electric fence, in which one or more wires are charged with electricity, is run by

Well laid flat stonedry-walling, topped with binding stones, surrounds a Niagara orchard.
NFB

means of a battery which sends a charge through the wires at intervals of a few seconds, not strong enough to be dangerous but distinctly disagreeable. The strength of the shock can be adjusted for different purposes.

For an electric fence to be fully effective, the animals to be enclosed must be trained to recognize and avoid it. The wires themselves are not easily seen and to warn the stock the insulators are made of a glistening white porcelain, readily seen and recognized. To train stock to remember and avoid an electric fence, a section of charged wire is built round some hay or other feed just beyond the reach of the animals so that they must touch the wires to get it. One or two shocks are enough to enable them to connect the white insulators in their minds with the shocks and they soon learn their lesson. Many animals, in fact, can not be driven anywhere near an electric fence again.

A single controller, which transforms the current from a six-volt battery to a high voltage, will charge several miles of fence and, if kept in good repair and working order, an electric fence is cheap and efficient. Like all the others, it has its drawbacks too. Very dry soil makes grounding difficult; weeds can grow up along the fence and short or ground the wires; a short circuit can exhaust the batteries.

As old in the history of fencing as the brush and stump fences of pioneer days is the stone wall. Used wherever suitable loose stone is available and timber less plentiful, the stone fence or wall served not only to enclose and protect the land but was also a means of disposing of the loose stones which lay scattered, in glaciated areas, in tens of thousands on the fields. Stone fences are often associated in the mind with poor soil and poor farming, not always without good reason.

The kind of stone at hand made a difference in the cost and also in the simplicity of building it into sound and solid walls. Flat stones, usually of some sedimentary rock, were easy to manage and a comparatively unskilled man could lay them on top of each other well enough to hold them in place. Sometimes they were built only a couple of feet high, with either rails or wire above that to reach the height necessary to restrain the stock. Certainly a low stone wall is much easier to build than a high one.

Ideally a trench was dug a foot deep and two feet wide to serve as a foundation for

the wall and in it were laid the largest stones with long ones on top of them. Small stones were placed between the larger ones wherever a space needed filling and the wall was gradually tapered from two feet at the bottom to a foot wide at the top. Binding stones, running from one side of the wall to the other, were laid at right angles to the others and a capping of flat stones was laid on top of all to shed water as much as possible. Such work was not for the amateur, and a well-built stone wall, even without mortar, will last for several generations.

There is one advantage to a stone wall that might not be immediately appreciated and that is as a shelter for sheep in a heavy snow storm. Lying close in the lee of the wall, sheep have often been found completely covered with snow but able to breathe comfortably through the chinks and crannies in the wall.

Rounded glacial and cobble stones will not lie as easily as flat stones will and, unless they are merely piled up in long rows or heaps, have to be held with cement or mortar. Such a fence is seldom built today.

Occasionally, in slaty countries, slabs of slate are set up shoulder to shoulder making strange but effective fences, especially where the frost is not severe enough to cause much shaling off. They need a fairly deep foundation trench but, once built, are long lasting and satisfactory.

Some farm experts condemn stone fences because they harbour vermin and are difficult to keep free of weeds and brush. Perhaps so, but a long stone fence trailing across the fields and over the slope of the hill, bittersweet climbing over it, and choke cherries, draped with clematis, growing alongside is one of the most charming sights of all the country side.

Even now the list of fences of different types is not exhausted for, as one representative said when he contributed his mite to the 1871 fence survey in the United States, "Cherokee County reports fences with names hitherto unheard of, the eccentricity of whose construction, language very feelingly conveys". There is the stiff and formal wrought iron fence of the city, and the cast-iron fence with its imitation leaves and flowers. There is the neat white picket fence with its thousand different patterns, the ordinary work-a-day board fence, the orange-scarlet snow fence, to be rolled up and stored away till next winter once the danger from drifting snows is passed.

Then there are the dozens of eccentric fences, some made from discarded wagon wheels, some from disused iron beds, and from anything else that could conceivably be built into a fence. Indeed, "their name is legion".

Today the long-settled parts of the country show little but barbed wire fences, but if you travel the back roads a surprising number of the old types are still to be seen and their study adds a new interest to the Sunday afternoon drive. It takes your car off the main highway and into quiet and little-visited byways where you might come across a "dog-leg" to add to your collection or even a Bloomer, whatever that was, or a leaning fence in which all the posts were set at an angle of forty degrees. At any rate, a fence can never again be just a fence and nothing more.

A modern type of wire mesh security fence, designed expressly to protect property and life.

This lovely view of Road Town (population 800), capital of Tortola, can be seen from the mountain ridge that cuts through the centre of the island. In the distance are neighbouring islands.

Backwards to Tortola

by GAY BURK

THE DRONE of wind through coconut fronds might lure you. The glimpse of fish barely disguised under their top dressing of apple-green sea — that could tempt you, too. But the one thing that will really entice you to Tortola is the strange and "different", the curiosities of an ancient world.

Far out in the lonely stretches of the Caribbean lies the little island of Tortola one of the British Virgin Islands. Actually, it is only a few hours by air from Miami, Florida, to this island; but you are flying "backwards" all the time, at least in the matter of customs and living manners. It is like stepping into the old sugar-estate world, into those island colonies of strong-muscled slaves and bold settlers tinted with adventure.

There are few modern innovations such as electricity, refrigeration, plumbing, gas, screens, or glass windows in Tortola. There are about two motor-cars on the whole island and only a few miles of road on which to travel. But that does not necessarily take away the thrills of getting about — or of living in general.

Boats, one of the more popular modes of transportation, have often been capsized in tropical storms. Donkeys, another useful means of travelling, have been known to drop dead. And as for horse-back travelling

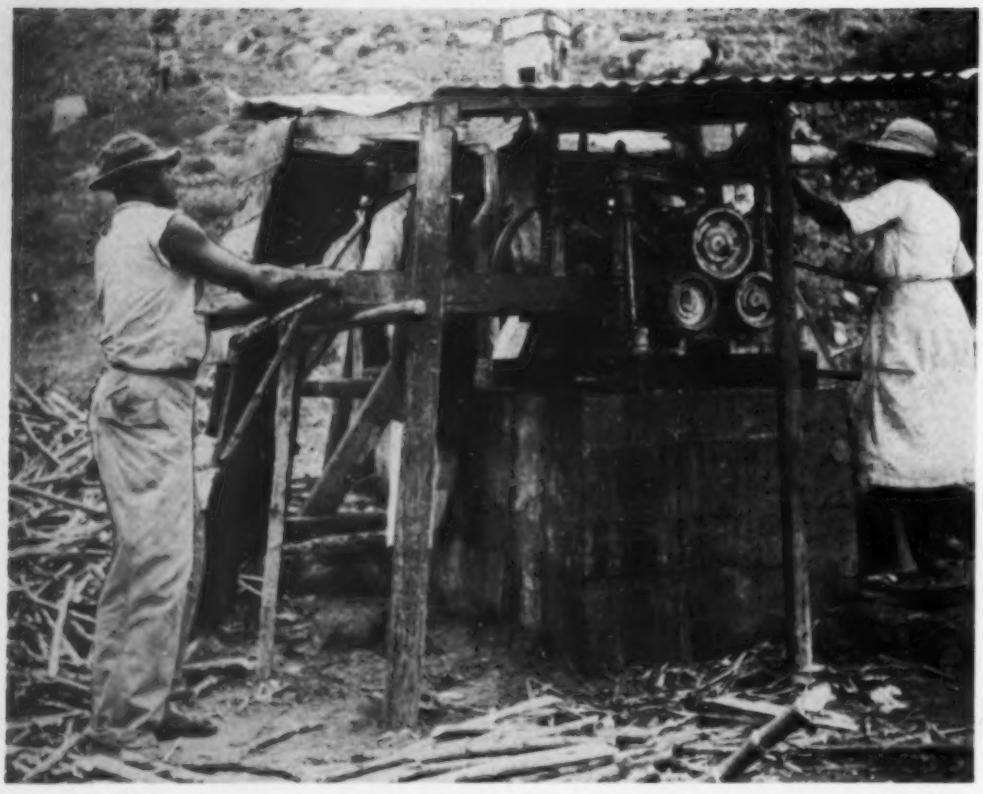
— it is probably the most adventurous of all. Tortolians have suffered from horse collisions just as more modern people do from mechanized accidents. Horses and riders, coming from opposite directions, have crashed into each other so violently as to kill both animals and injure the riders. Naturally, the animals were going as fast as the wind and their four legs could carry them at the time.

Ruins of the vast sugar estates lift ghostly frames above the tangled brush of the island. But upon closer look, the visitor realizes these apparent ruins are still in running order. Today these mills operate very much as they did 200 years ago. The only modern addition is a small gasoline motor to power the cane crusher, which is a substitute for the old mule-driven power. But mules still bring in the cane from the fields, and everything else is done in the old primitive ways. The crusher is fed by hand by several husky islanders. A young girl or a lad picks up the cane from a large heap and lays it on the ledge of the machine, from which the crusher takes it. Another worker, often a woman, carries the crushed stalk as it emerges from the machine to a prodigious heap of trash or *megass* which, when dry, will be used as fuel under the vats for boiling and distilling.

The cane juice from the crusher flows through a crude bamboo trough into the dark, dank boiling house. This 200-year-old building still has the old brick vats built into the side of the wall, and the dirt floor is smooth with the years' pounding of casks and the feet of slaves. A caretaker or boiler stands watch at each vat. From time to time he lifts a large perforated disk tied to a pole and dips it into the boiling mud-like liquid to take off the top layer of foam. So faithful to old customs is all this, one almost expects to see the axe lying close by, for in those old days, if a slave should accidentally scald his hand or arm, it was considered humane and proper to chop off the injured part to prevent infection and the loss of the whole slave. Three-quarters of a slave was better than none at all both to the owner's mind and to the slave himself.

The distilling is also done by primitive methods. Small gourds are used for sampling the rum and are commonly called "one-a-man" which is a slight misnomer since one gourd per man is by no means the limit of the sampling! Of course there are some giant-sized gourds, and perhaps the name one-a-man applies to them. Everyone who takes any part at all in the intricacies of these rum mills is paid in produce. No actual cash ever changes hands in this old industry. That

Saturday is market day when Road Town wharf is magically churned into activity, and country folk bring their produce in by boat, donkey, horse or on foot. Yams, sweet potatoes, eggplant, tanias are all for sale and even a few bananas, papayas, coconuts and some sugar cane.



In Tortola a modern touch has been brought to rum distilling by the substitution of a haphazard motor equipment for the ancient mules that formerly wandered round in a monotonous circle to crush the sugar cane.

might be one reason for the singing and the festive air about the place, as if it were anything but hard work.

But an even older profession of the island is fishing. In Tortola they fish mainly by traps and nets. Nets are used for capturing the huge sea turtles of these waters. The men make their own nets with heavy cord and shuttles, taking about a week of steady weaving to finish one. They also make their own decoy turtles, the big wooden imitations that are set out with the net to lure the real specimen.

The fish traps, or pots in island parlance, are made of strips of wood secured by a vine called black wist. The pots are taken out and weighted down so they will rest on the bottom of the sea where the fishes like to feed. Just to add to the strange and curious, the fish caught in them have names like old-wife, doctors, goo'too, porgies, and butter socks!

Since charcoal is the standard fuel for cooking both in the British and American Virgin Islands, charcoal making is one of the chief industries. It is a tedious procedure. The wood must be chopped, stacked, and completely covered with brush and soil and left to smoulder for several days. It is packed in bags which bring about $1.50 to the worker. Many other islanders make a living by growing sweet potatoes and tanias and by raising beef cattle.

One of the few plants native to these islands is the cassava. Island dwellers soon learnt that in some of its stages, the tuberous plant was edible. Today, cassava bread is made and eaten as it was hundreds of years ago. The vegetable is squeezed again and again until all the juice is extracted for, strangely, the juice of the bitter cassava is poisonous, although the pulp is quite edible. And even more strangely, the juice will lose its noxious property when fermented. The pulp is dried until of the consistency of coarse meal, when it is ready for baking. A metal platter, fitted with a hoop, is placed over an outdoor fire and filled with a thin layer of dry cassava. What happens next is a puzzle to the onlooker, but the baker reaches for a wooden paddle and pats and pats the dry white mass, and somehow or other it all adheres, and when the hoop is removed, a large round thin cake emerges, ready to eat.

The fact that their own small island gives the Tortolians very little outlet for their produce, creates a strange situation. They must turn to St. Thomas, the chief island in the American Virgin Islands 25 miles away, for their market and now, little by little, the Tortolians' complete manner of

life is being conditioned by this American neighbour. Their dress and speech, their ideas of economics, their currency, their desire for easy money, their living and standards — nearly every phase of their once-placid life has been slightly ruffled by this tide of St. Thomas influence. The young people, particularly, are no longer quite willing to stay in the ancient 200-year-ago atmosphere of Tortola.

And although Tortola is British and allied to England governmentally, it has no ties whatsoever in practical and economic matters. England is thousands of miles away; America is at the side door. So practically all imported products come from America, via St. Thomas.

At first glimpse of a typical capsule-sized shop, the visitor might question the idea that there could be anything of the modern world here at all. But when called upon, the shopkeeper can, from some mysterious caves of booty, produce blankets, fabrics, pillow cases, sheets, suitcases, shoes, pans, dishes, corn meal, sports goods, locks, hinges, oil, razor blades, hats, buckets, lanterns, cutlery — all originally from America. When someone decides to build a boat, something done with great skill on the island, he must import and pay duty on the lumber, the nails, the hardware, the motor, the metal, all from the United States. The grocer also imports tinned vegetables and fruits and packaged goods from this country, which are perhaps the most incongruous sight of all in this small mostly-ancient island!

It is great cause for ironical mirth when a visitor just off a ship asks for fresh foods at the stores and few guest houses of Tortola. So you had a photograph in your mind of a tropical island where fruits hang heavy on the tree right at your elbow, did you ? Oh, but you are *pistorcle*, ridiculously amusing. Oh, we have fresh food, all right — but only once a week, mon! Saturday is market day, that day and none other. The rest of the week you just jolly well get along as you can.

On Saturday everyone who has anything to sell that has not already found its way to St. Thomas, goes to Road Town, the principle town with a population of 800. The harbour is filled with sails and boats and people and produce from the other small settlements. The wharf is magically transformed into the market place. Two meat stands have been set up, filled with freshly killed beef, great hunks of it flung on boxes and crates and hanging overhead, all uncovered, of course, and exposed to the grime of the day.

Hand-woven hats and baskets are laid out in neat rows; baskets are an essential for

An old sugar mill which today distills rum exactly as it was done two hundred years ago. Payment to the fire-feeder (shown here) and all the other workers is in rum.

marketing here since there are no paper bags for holding your newly-purchased goods. Breadfruit, tanias, sweet potatoes, and egg plants are laid out in heaps and sold by the heap. Every housewife soon learns that these are the only products which will keep, without refrigeration, until the next market day. Of course one must learn to cook only enough for one meal, for any left-overs are completely wasted, since cooked food will not keep even twelve hours.

Papayas and sweet-potato-pudding and tomatoes from the market place are bought in small quantities for they spoil rapidly. Country women bring pastries made in their outdoor brick ovens, as well as biscuits, coconut cake, guava tarts, and Johnny-cake. There are also huge circular flat things re-

Below:—The solitary taxi waits in the main street where the tiny shops, crowded together, are full of expensive goods imported from America.

Above:—Road Town boasts one mule cart which has the advantage of being able to reach hillside spots where the town's car cannot go. When hauling furniture or supplies, the owner's assistant walks alongside to hold the articles in place. The condition of the island's two cars is such that they are never both in operation at once.

sembling saddle-blankets stacked up in large piles. These are the cassava breads which taste very much as they look. American money, not British, is the medium of exchange, another result of St. Thomas influence.

About three in the afternoon everything is closed up, tucked away, or eaten. The wharf will be just a peaceful bunch of boards again until next Saturday.

The expression "untouched by Western Civilization" is often bandied about, but here on Tortola they have been touched with it and yet manage to get along very well in their own ancient island ways; at least the oldsters are content, and see no reason why their youngsters should not keep the old traditions.

Below:—At Sea-Cow Bay fishermen weave their own fish-pots of vine and wood. The traps, made in about six sections, are set on the sea bed.

Above:—Two lovely Tortolians. Cynthia, left, has just finished school and takes singing lessons from a visiting teacher. She does not mind the lack of outlet for her vocal gifts. Audrey, right, had a teacher's training and taught lower forms for two years. Now she is a government worker in the Post Office Department.

There are swans on the river Avon in Ontario as there are on the Warwickshire Avon.

The Stratford Shakespearean Festival

by JAMES PILDITCH

Photographs by Peter Smith and Company

A SMALL conservative town on a bounding continent, Stratford, Ontario (population 19,000), has suddenly found itself famous. Although only a hundred miles from Toronto and a few hours by road from New York, Stratford's calm has scarcely been ruffled by the march of Canadian industry. While other towns in the prosperous southwestern corner of Ontario have boomed, Stratford has grown slowly and unobtrusively.

But the bold idea of an imaginative citizen, Tom Patterson, has altered that. With one far-reaching stroke that has left our big cities gasping, Tom has taken to his town a theatre, the plays of William Shakespeare, and some of the finest actors in Britain.

On the banks of the Avon river in Stratford, Canada, Tyrone Guthrie has been producing, and Alec Guinness and Irene Worth have been performing in, the first annual Stratford Shakespearean Festival. During July and August 1953 they staged

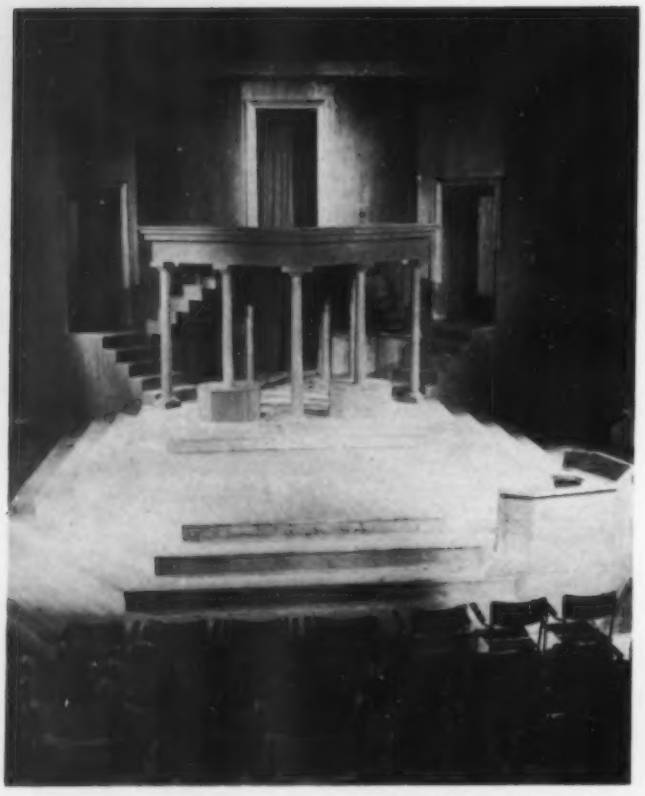
Stratford's Park made an ideal setting for the blue and terra-cotta tent theatre where the performances took place.

Richard III and *All's Well That Ends Well* in a large, blue and terra-cotta tent under the wide, bright Canadian sky. To Tom Patterson it was a dream come true; to Tyrone Guthrie, director of the Old Vic, "one of the most exciting occasions of my life", and to North America the most vibrant theatrical event for many years.

The scene of this event found its origin in the early days after the war of 1812, and ever since then Stratford has been an obvious reminder to English settlers of their own Stratford-on-Avon "back home". One of the earliest settlers, Thomas Mercer Jones, tramping through the marshy forest, came to a river and a "good mill-site". He called it Stratford (meaning a narrow crossing), but did not forget where the name had been originated. In 1832 he named the river the Avon, and gave an oil painting of Shakespeare to Stratford's first building. The settlement was renamed Stratford-on-Avon, until exasperated post office officials said the name was too long, and arbitrarily cut off the last two words.

By 1900 Stratford was a thriving town, with a railway, a flourishing furniture industry, an industrious community, and, of course, a bridge. The bridge today is a fair monument to Shakespeare's own birthplace, and is not unlike the Clopton bridge which Shakespeare must have crossed when he was off to seek his fortune in London, 350 years ago.

The town grew slowly, a quiet cluster of streets, and retained its neighbourly quality.



The apron stage was skilfully designed by Tanya Moisewitsch for the Stratford performances. There are entrances from all sides and a gallery above. The audience sits on three sides of the stage as in Shakespeare's own day.

Civic pride created parklands where there had been foul-smelling swamp, and the similarity in names prompted Stratfordians to shape their town on the Old-World image. "What could be more natural," asked a newspaper editorial last year, "than that the city should aspire to be the Shakespearean centre of Canada?" Already it had been thought natural to put a plaque of "Honest Will Shagspur" over a gas station, and to name the rooms in the local school after the Bard's best-known characters.

The first person that thought seriously about theatre in Stratford was Tom Patterson, the festival's present manager. A Stratford boy, he had seen Shakespeare's home and the industry of "bardolotry" that draws over a hundred thousand people there each month. He talked about using Canadian actors, and importing British Shakespearean stars, to claim the town's birthright, and establish Stratford, Ontario, as the cultural centre of Canada. He put his ideas to the Mayor and later to the city council. "It's bound to mean more business", he said. "I feel sure that Sir Lawrence Olivier would come." He asked for a hundred dollars to go to New York to find out.

There, he could not even see Olivier. He used the trans-atlantic telephone to call Tyrone Guthrie, then holidaying in Ireland. Tom asked Guthrie to come to Canada to look the idea over. In July of last year he arrived in Stratford.

The newly-formed Stratford Shakespearean Festival Committee expected Britain's foremost producer to "spout culture over our heads". Instead, he astonished them with his forthrightness. A tall, positive man, he said . . . "If you want to make a lot of money on this festival, I can tell you how to do it. Get a dozen dancing girls up from New York. Put a band and some lighting behind them . . . though, of course, I shan't be with you. But if you want to try to produce the finest Shakespeare in the world, and give Canada more than wealth and industry to be proud of, then I think you can do it, and I'll be with you all the way."

Two weeks later, with the whole committee behind him, he presented his findings at Stratford, before flying home to direct the Edinburgh festival.

Canada, he said, could muster sufficient first-class acting talent to fill the supporting roles . . . Stratford's park was ideal . . . the audience could stroll across the grass to the water's edge during the intervals between performances . . . use a tent . . . build an apron stage, to bring back the intimacy Shakespeare used to have with his audiences. "But wait," he warned, "until you can get top stars, the very best."

The committee promptly despatched Tom Patterson to England to shop for stars. He returned to Stratford with some of the finest talent the British stage could provide . . . Tyrone Guthrie, Alec Guinness (who turned down a lucrative Hollywood contract to come to Canada), Tanya Moiseiwitsch (daughter of the pianist) to design the decor, and Irene Worth (of the Old Vic) best known

in Canada for her performance in the New York production of *The Cocktail Party.*

Lofty, forthright Guthrie, whose tie seems permanently askew, felt strongly that this festival, though getting help from Britain, should be essentially a Canadian project. In an early letter he wrote . . . "We have a chance to make a conspicuous, and therefore potentially useful gesture, in favour of Anglo-Canadian co-operation."

The actual scope of this project became suddenly apparent when Stratfordians found their hotels jammed, and received requests for tickets from as far afield as Hawaii and Greenland, England, and from every state in the Union.

Stratford was in a dither and a pleasant daze when the cannon which preceded every performance was fired for the first time. Children playing baseball in the park dropped their bats to watch the cars drawing-up before the tent theatre. Quebec . . . Illinois . . . Texas . . . New York . . . British Columbia, their license plates told that they had come from all over the continent.

In the theatre, the 1,500 seats were filled (300 more than the Memorial theatre at Stratford-on-Avon). And because the seats rise from all round the stage, in Shakespearean fashion, no one was more than fifty feet from the stage. *Richard III* began, in Stratford, with Alec Guinness as the king, and Irene Worth as Margaret (widow of Henry VI), all under the startling, polished production of Tyrone Guthrie.

Long before Richard's plaintive "A horse, a horse, my kingdom for a horse", everyone

A dramatic battle scene in the tragedy of Richard III. *The King, played by Guinness, falls dead beneath Richmond's sword.*

All's Well That Ends Well was performed in modern dress. Alec Guinness made a perfect presentation as the King of France.

knew that the Stratford Shakespearean festival was the theatrical event of the year.

All's Well That Ends Well was performed in modern dress. The king of France wore evening dress, the troops wore khaki shorts, Irene Worth's dresses were long and timeless in quality. In one scene there was a typewriter on the stage. The play, called a Shakespearean potboiler, has not been performed by a major company for many years. Yet this one modern production—4,000 miles from the Old Vic and the West End of London—showed that the "Swan of Avon" was "not of an age, but for all time". It served to highlight the widespread interest in drama in Canada, and to show the mature capabilities of the Canadian actors in the cast.

The production showed, too, what the actors were echoing . . . "there's a touch of genius about Mr. Guthrie," born of his restless imagination, his originality and his dedication to the theatre. One of the Canadian actors at Stratford, in the theatre for many years, was asked when he began acting. "June 2nd, 1953, when I started to work under Mr. Guthrie," was the reply.

Well over 10,000 people saw the plays in the first week. The town's two small hotels and Chinese restaurant were packed. "Sorry", said one manager, "we couldn't squeeze anyone else in here with a shoehorn". In an effort to relieve the congestion Stratford ladies turned a local church-hall into a canteen. Banners and flags, revived from the Coronation festivities, fluttered over the town hall and along the streets. Beneath, people swarmed along to the festival site, where stately swans glide on the Avon. Outside a hardware store, the merchant was saying . . . "that's a critic's job,

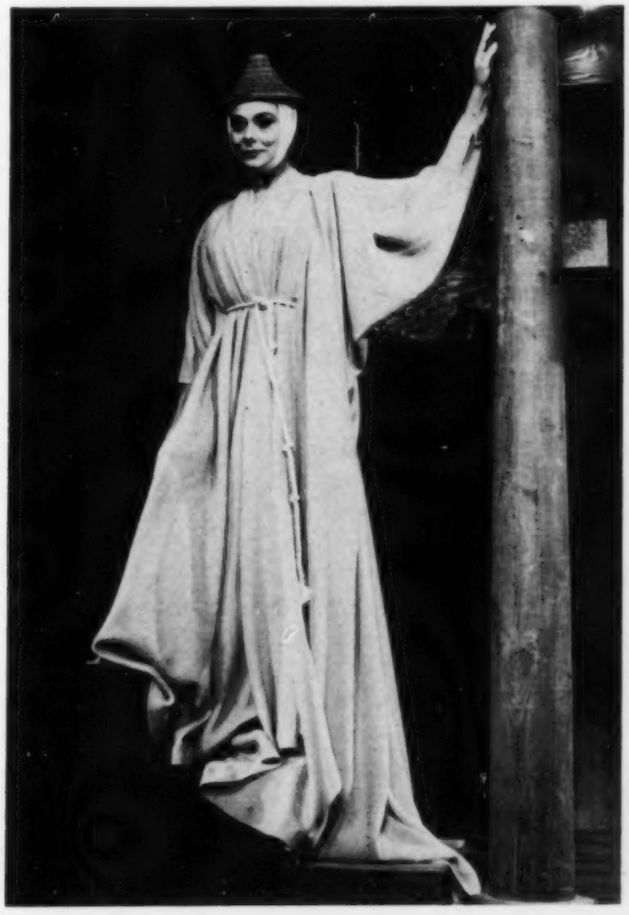
but I preferred Richard." Farther down, in the drugstore, a young man in jeans and striped sweatshirt, confessed that he had never seen a Shakespearean play before: "But I'm sure sold on him now," he said.

Even the federal election felt the plays' impact. On the actors' notice board, outside their dressing-rooms at Stratford, was a cartoon snipped from one of the daily papers. It showed Alec Guinness as the star in *Richard III*, and in the shadows offstage, Louis St. Laurent and George Drew. They were looking enviously at the actor in the limelight. "Yeah", the caption read, "but look who wrote his speeches".

The Governor-General has shown a keen interest in the Stratford festival from its beginning. Late in July, His Excellency spent two days on an official visit to the city and the Stratford festival theatre. He delved into all aspects of this bold project, met the cast, and expressed his eagerness to see such organizations fostered in Canada.

It is happily said that the Shakespearean festival at Stratford, Ontario, has caused more publicity about Canada than any event since the Royal visit. Certainly, the impulse of an Englishman, 120 years ago, to give the Avon its familiar name, Tom Patterson's doggedness, and widespread devotion to the theatre, have made the green banks of the 'other Avon' famous.

Perhaps the echo of the English Stratford's lucrative Shakespeare industry may come to this corner of Ontario. But to the people of Stratford that is less important, by far, than to have met William Shakespeare, to have seen the crowds of visitors strolling through Stratford's streets, and to have watched Tom Patterson's dream come true.



***Irene Worth made a most picturesque* Helena *in* All's Well That Ends Well.**

Puppets of the Skeena

by JOSEPHINE HAMBLETON DUNN

Drawings by the author;
Written from information collected by Dr. Marius Barbeau.

EVERY ONE knows the totem poles of British Columbia. The powerful Ravens lowering down from those gigantic poles do sometimes look a trifle satisfied with some tremendous joke, with their unexpected success in bluffing people into respecting their power. The puppets made by the Tsimsyan Indians who lived in the brooding forests of the Skeena valley were much more human and understandable.

Unfortunately the puppet which the great hunter of the Skeena river country made to represent his wife has now irretrievably vanished. It was the artistic expression of an overpowering love. The story of the puppet-wife has been recorded by the finest living Tsimsyan scholar, William Beynon, for Dr. Marius Barbeau:

"A hunter and his bride lived alone at a camp in the mountains. They were very much attached to each other. The man would go and examine his traps and snares and when he had returned home, they would work together in preparing the game. When they had finished, they frolicked and played.

"Soon they had a great deal of game, so they returned to their village and were happy . . . not long after their return to their village, the bride began to feel ill, and could no longer walk about. Medicine men were called in from everywhere . . . steadily she grew worse and finally died. The hunter felt grieved and went back to his hunting territory to isolate himself from his people. So deep was his sorrow . . .

"He grew so lonely for his wife that he carved a likeness of her, so that he could speak to her as though she were yet living. So realistic was his carving that it seemed alive. Once finished, the hunter adorned the carving with the ornaments which his wife had worn, and dressed it in her clothes."

This carving was a life-size puppet. Its hands could be manipulated to weave, prepare food, clean, and perform household tasks.

"Before he himself ate, the hunter placed food before the figure, and when he retired, he took the carving to bed with him. When he set off to his traps, he said to the figure:

" 'I am going to my trap line. I will not be long. When I return, we shall frolick and play as we always do.' . . .

"The young man had been away so long that the people of the village began to worry about his safety and they went out to look for him, and induce his return. When he saw these parties coming, he hid the figure of his dead wife. And when many people came to induce him to return to the village, he refused stubbornly.

"Now a beautiful Princess said: 'I will go myself and induce him to return."

"It was while the hunter was addressing his carving as a person that, through a crack in the wall, the Princess saw him comforting what she imagined to be a woman. Jealous because her trip had been for nothing, the Princess burst into the house without announcing herself. Her brothers followed close behind.

"Taken by surprise, the young hunter had no time to hide the figure of his wife. The Princess came close to the figure and saw it was carved of wood. She exclaimed: 'See, my lover loves a wooden wife. He has no use for a live woman. He cannot be a man.' With that taunt, she laughed, returned to her village, saying: 'This will make our people happy, to know that our best hunter is married to a wooden wife.'

"Humiliated, the hunter determined never to return to his village.

"One day, he went further than usual, and

did not return till nightfall. He noticed a fire burning and some one moving about in his house. He entered and saw exactly where he had left it, his carving of his wife. Food had been prepared in the manner in which his wife had been used to doing it for him, yet he found no one, heard no one. He searched everywhere and decided some one had come from the village to make mock of him.

"On the return to his home from his third expedition, he saw everything was as it used to be in the old days: a great burning fire, and some one walking about. Through a crevice in the wall, he saw his wife at work as she had always been. Then he moved quietly to the doorway and rushed in, taking her by surprise, and embraced and held her. Both wept for joy. She said: 'I was really dead but because you loved me so much and were so faithful to me, the great Chief of the Skies sent me back to you through the carved figure which you made of me. And, besides, he was angered at the remarks of the Princess who has ridiculed you for being faithful to me.'

"Together, the happy couple returned to their village, gave a great feast with distribution of wealth, distribution of furs and foods. So those who made mock of the hunter were hushed and embarrassed, and the wife gained high standing."

The National Museum of Canada owns several puppets similar to the hunter's bride puppet. They were collected in Tsimsyan country. The Tsimsyan were once rulers over the luxuriant valley of the Skeena river, which flows from the peaks of the Skeena Mountains down through hushed primeval forests and empties into the Pacific about ten miles south from Prince Rupert. This river gave its name to the Tsimsyan Indians. Tsimsyan means People-of-the-Skeena.

Tsimsyan shamans or wise men used puppets as charms for relieving illness. Our first illustration represents one of these get-well puppets—a puzzled little woman taken ill while performing household tasks. There are tattoo marks on her legs. She can bend, stoop, raise and lower her arms, thanks to strings running through both ears to her

A get-well puppet made by Tsimsyan Indians. It represents a woman who caught 'flu on her way to draw water from the well.

wrists and through loops in the pit of her back. This is her story:

"At the time of the first influenza epidemic in 1918, a woman was taken sick. The doll was placed near where the patient lay and then shown to the medicine men. All the medicine men started to sing the song of the doll and the sick patient disappeared and where she had been lying, now lay the doll which represented the spirit of sickness. Now all was well."

The puppet illustrated on the right represents a medicine-man intoning his magic-making song, arrayed in the full splendour of traditional bear robes and bear-claw crown

A puppet medicine man, or shaman, intoning his magic song. He wears a bear-claw crown (made of tin) and a long bear robe fringed with cedar bark tassels.

A name-mask, worn by a Tsimsyan on taking over the chieftainship. Twin puppets, manipulated by strings, are attached to a bar across the top of the mask. The fringe of hair is made of shredded cedar bark.

(a crown made from cutting an old tin can). Wildly he shakes his magic rattle (made from a discarded box of pills), raises his arm in eloquent entreaty to supernatural powers. His red cotton shirt is tucked into a deerskin skirt. His movements are controlled by strings, in this case running through a set of loops on one side of the head only. The arms are jointed by strips of leather at shoulders and elbows. Few artists today would have sufficient ingenuity and imagination to change a box of vitamin tablets, an old tin of peas, a few scraps of wood and leather into so fearsome a portrayal of a powerful magician.

Medicine-men, or shamans, controlled the religious life of the Tsimsyans. They communed with the invisible, gained the intervention of spirits on behalf of their tribe. Each shaman asked counsel from his own familiar spirit, through dreams, trances, visions, and whilst engaged in this supplica-

Puffs of eagles' down encircle the wrists and ankles of this graceful little puppet.

Detail showing the strings that manipulate the puppet on top of the name-mask.

tion, identified himself with and impersonated his protecting spirit. The shaman communing with Raven wore an ingenious mask carved to represent the bird. Strings opened the mask, and revealed within an inner mask, carved like a human face, and representing the wisdom of the Raven. When a shaman wore the Raven mask, he cawed through long skin tubes, and his assistants danced and made music expressing the physical characteristics of Raven.

All this elaborate paraphernalia, including the mask and skin tubes, were carved, painted and sewn together by members of secret societies who withdrew to secluded houses hidden in the deep woods. The houses were completely surrounded by cedar-bark rings, writes William Beynon, as warning that it meant death for any one to intrude. The various supernatural whistles of the secret societies were sounded continually round the house.

Only Chiefs knew the secret of the work done in these secluded houses. A chief ruled over each of the large communal houses assigned to clansmen, freemen, slaves, wives and heirs. The women wove shredded cedar bark into baskets, rain capes, hats like those worn in Chinese rice fields. The men followed the chiefs to war, made weapons, canoes, houses, totem-poles, name-masks. Name-masks represented those names which chiefs had earned through their own cunning, skill or courage and were worn only once—when the chiefs assumed office. The name-mask here illustrated was collected by the Indian agent at Meltakatla in 1912. Its story is not known. The markings on the face suggest a flicker-bird. Two puppets fitted to the crown perhaps illustrate some forgotten tale about twin brothers.

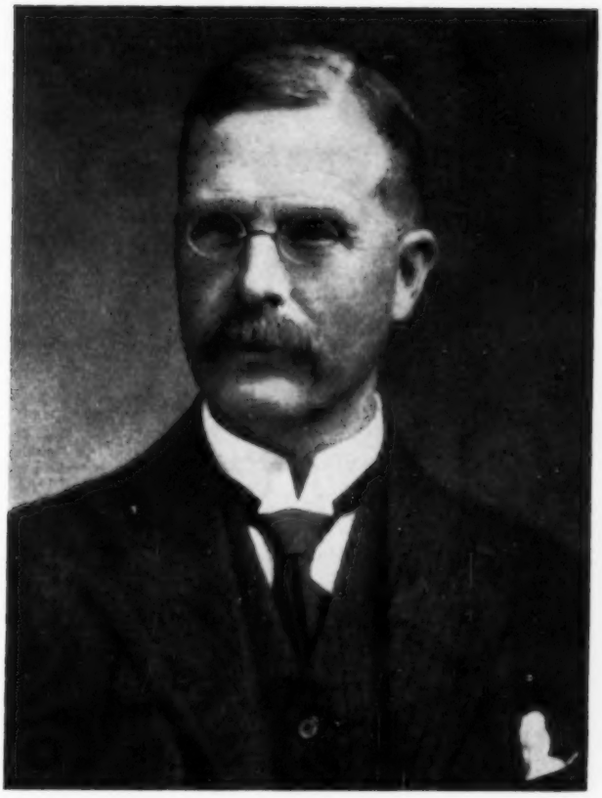
Chiefs offered enormous feasts to mark the death of relatives, their own coming into the chieftainship, the birth and marriage of their children, their victories, their trading prowess. Slaves passed canoe-loads of food among the guests. Warriors scattered eagles' down in token of pacific intentions. A most graceful puppet wearing rings of eagles' down at wrists and ankles, now in the Royal Ontario Museum of Archeology at Toronto, possibly commemorates such a feast.

It is now impossible to discover whether the puppet-makers of the Skeena owed their art to a purely native, Canadian tradition, or to a skill acquired from the East.

The Tsimsyan are the traditional arts of Canada, in the way the Aztec, Maya and Toltec are the traditional arts of Mexico. Tsimsyan carvings expressed the fear and awe of the forest that dominated the lives of the puppet-makers of the Skeena.

Joseph Burr Tyrrell

by F. J. ALCOCK



J. B. TYRRELL

JOSEPH BURR TYRRELL, honorary president of The Canadian Geographical Society, has been selected as the subject of the first of a series of short biographical sketches of some of the more important geographers who have been responsible for securing the primary information for the making of the map of Canada. While perhaps best known as a geologist and geographer he has also served his country as an engineer and historian. Ninety-five years of age on November 1st, he is still active and takes a keen interest in the development which is now proceeding in regions where he pioneered.

Tyrrell was born at Weston, Ontario, graduated from the University of Toronto in 1880, and a year later joined the staff of the Geological Survey of Canada under Alfred R. C. Selwyn. The latter had succeeded Sir William Logan, the founder and first Director of the Survey, who had retired in 1869 shortly after Confederation. Much of the new territory added at this time to Canada was entirely unexplored and it was to fall to Tyrrell's lot to play a major part in securing the first information about large areas of it.

Before being entrusted with independent assignments, Tyrrell served an apprenticeship under another of the great figures in Canadian geology, George Mercer Dawson. In 1883 these two carried out explorations in the Rocky Mountains from the American border north to Kicking Horse Pass crossing the range four times through different passes. In this work it was Tyrrell's task to keep a pace and compass survey of the traverses and to collect plants, fossils and other natural history material. It was a strenuous introduction to Survey work under a demanding though sympathetic chief.

During the three succeeding years Tyrrell was at work on his first independent task—mapping and studying the geology of the

country north of Calgary and east of the Rockies. It was while so engaged that he discovered remains of dinosaurs in the Red Deer valley. These formed the beginning of the very extensive collection of fossil vertebrates in the possession of the National Museum at Ottawa.

The seasons of 1887-90 inclusive were spent chiefly in western Manitoba mapping an area comprising some 25,000 square miles. This region includes the lower portion of the mighty Saskatchewan River, parts of the Red, Assiniboine and other important streams, lakes Manitoba, Winnipegosis, and Dauphin, the two former each about 120 miles long, and the Duck and Riding Mountains where the Cretaceous rocks to the west terminate in a northeastward-facing escarpment. The main topographic feature of the region is Lake Winnipeg itself, 260 miles long, 60 miles wide at its northern end, and having an area of 9,094 square miles. The summer of 1891 was spent in the exploration of the principal streams entering Lake Winnipeg from the east. The mapping of all these waterways, with the study of the bedrock geology and also of the Glacial features and history was a most noteworthy accomplishment.

The next three years saw the explorations for which Tyrrell is probably best known. In 1892 he traversed a large area of northern Saskatchewan north of the Churchill River and between Reindeer Lake on the east and Athabasca River on the west. He mapped the Black, Cree, Foster, and Haultain rivers and Wollaston Lake. Wollaston is unique in that it lies on a divide draining by two outlets of almost equal volume whose waters flowing to the northwest and to the northeast reach respectively the Arctic Ocean by way of the Mackenzie and Hudson Bay by way of the Churchill. It was during this season while in the Lake Athabasca region that he gained information about a route to a great northward-flowing river and he decided that if he could secure permission he would endeavour to explore it the following year. The route would traverse a belt of country some 200,000 square miles in extent concerning which the only information available was that supplied by Samuel Hearne of the Hudson's Bay Company who had crossed it on foot over 120 years previously.

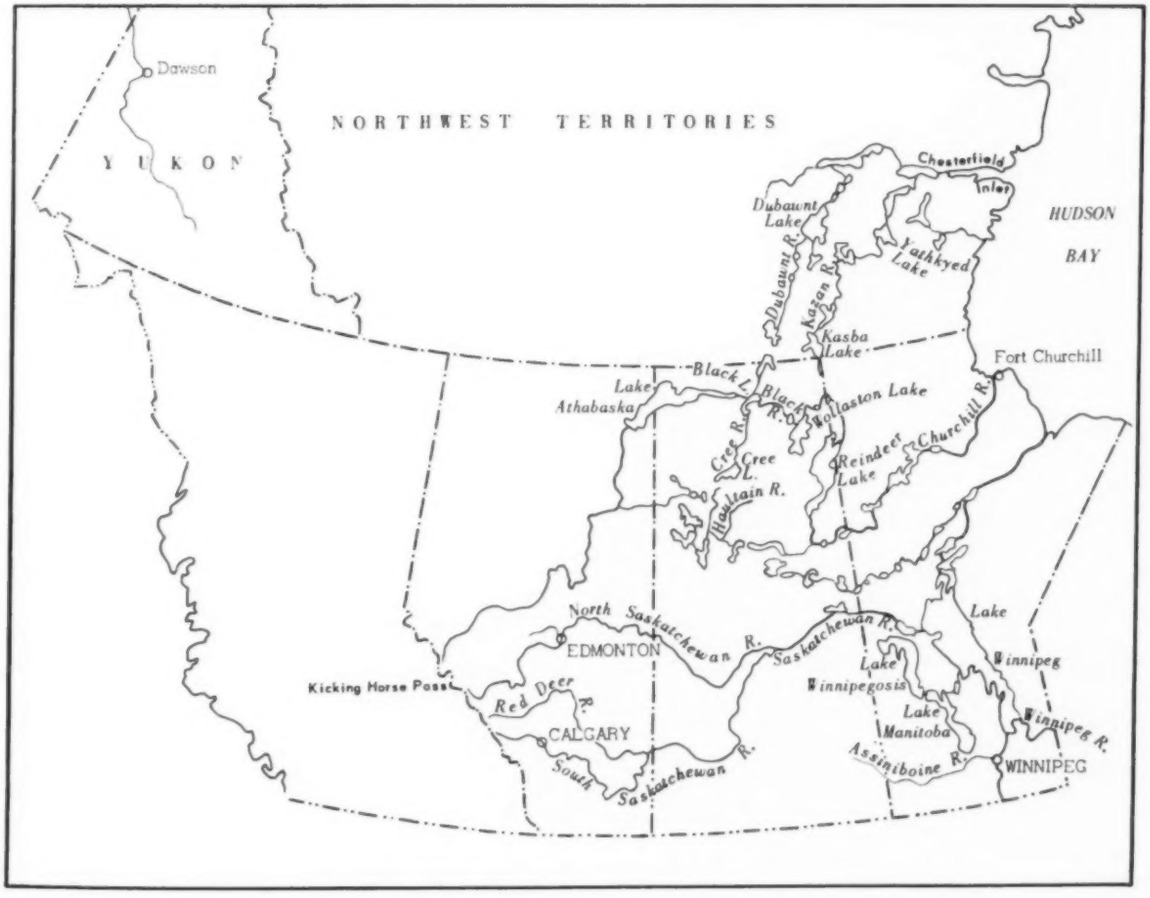
On June 21, 1893, a party consisting of J. B. Tyrrell in charge, his brother J. W. Tyrrell, and six canoemen left Fort Chipewyan at the west end of Lake Athabasca in three canoes and proceeded to the east end of the lake and up the Stone River to Black Lake which Tyrrell had mapped the previous year. From here he had but a crude Indian sketch to guide him to the northward flowing river. The first part of the route was through a chain of small lakes separated by swift portions of a southward flowing stream, which had its rise in a large lake to which Tyrrell gave the name Selwyn. From here a portage was found to another lake whose outlet was to the north, the sought-for Telzoa or Dubawnt River. Descending this stream marked by numerous rapids the party passed from the wooded belt into the barren tundra where one of the difficulties was to find sufficient fuel to boil a kettle. Just when provisions were about exhausted herds of barren ground caribou numbering thousands and covering many square miles were encountered. Enough were secured to replenish the larder and while the meat was drying the two Tyrrells wandered through the herds taking photographs. On August 7th, they entered Dubawnt Lake whose surface was covered almost entirely with ice and it was eleven days before they succeeded in finding the outlet. As yet Tyrrell did not know whether he was headed for the Arctic Ocean or for Hudson Bay but eventually the course swung to the east and on September 12th, he reached Hudson Bay at the mouth of Chesterfield Inlet. There now remained the four hundred mile journey in small canoes down the open waters of the Bay to reach the nearest trading post. With provisions exhausted, with the men suffering from frostbite, hampered by snowstorms and floating ice which cut the canoes, the party nevertheless finally succeeded in

reaching Fort Churchill. From here it was a journey of 800 miles by snowshoe and dog-team to reach the railway at Winnipeg and it was January 11, 1894, when Tyrrell reached Ottawa.

Undaunted by his experiences on this journey, Tyrrell the following field season crossed the region again by a different route. Proceeding northward from Reindeer Lake up the Cochrane River he crossed a height of land to Kasba Lake. Descending the Kazan River to Hearne's Yath-Kyed Lake, he portaged across to the Ferguson River in order to avoid coming out again at Chesterfield Inlet and descended that stream to Hudson Bay. Once again he had the long paddle down the coast to Churchill and the trek on foot overland to the railway.

Tyrrell's name is also immutably associated with another part of northern Canada —the Yukon. Sent first in 1898 to make a survey of its southwest part and to visit the new Klondike placer gold district, he later spent seven years there in a private capacity as a consulting engineer. More recently he has been chiefly concerned with mining developments in his native province.

As already stated, Tyrrell's contributions were not merely in the field of exploration. His geological findings, particularly in the field of Pleistocene or Glacial geology, brought him world-wide recognition. His interest too in the history of the regions which he transversed is shown by his publications, particularly those relating to some of the great explorers of Canada. He has been the recipient of honorary degrees and numerous other distinctions. Among the latter may be mentioned the Back Medal of the Royal Geographical Society, the Murchison Medal of the Geological Society of London, the Daly Medal of the American Geographical Society, the Flavelle Medal of the Royal Society of Canada, and the Wollaston Medal of the Geological Society of London.



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EDITOR'S NOTE-BOOK

Dr. Douglas Leechman (*Good Fences Make Good Neighbours*) has served for many years in the division of anthropology of the National Museum of Canada, where he is senior archaeologist. He is widely known as lecturer, broadcaster, and author, two of his most popular books being *Indian Summer* and *Eskimo Summer*.—Gay Burk (*Backwards to Tortola*) now works for a newspaper in Hawaii where she is lingering in the course of fulfilling her ambition to see the world. She has already lived in all the United States except New England, and in the West Indies, Mexico, and Alaska, writing as she goes.—James Pilditch (*The Stratford Shakespearean Festival*) came to Canada from Britain two years ago and settled in Toronto. Free-lance writing is his avocation.—Dr. F. J. Alcock (*Joseph Burr Tyrrell*) was for more than thirty years on the staff of the Geological Survey of Canada before being appointed, in 1947, to his present position as Chief Curator of the National Museum of Canada.—Josephine Hambleton Dunn (*Puppets of the Skeena*) is a native of Ottawa and a graduate of the Slade School of Fine Arts in London. She has published many articles dealing with art subjects. For a number of years she assisted Dr. Barbeau in research and preparation of material.

AMONGST THE NEW BOOKS

American Wildlife and Plants

by Alexander C. Martin, Herbert S. Zim and Arnold L. Nelson

(McGraw-Hill, Toronto, $9.50)

This outstanding reference work breaks new ground. It is the result of an endeavour to place within the limits of 500 pages, in organized and readily available form, the greater part of present information about the relations between wildlife and vegetation in the United States, especially the use of vegetation as food for wildlife. It is complex and depends heavily on the use of special symbols, but that is probably inevitable because of the great mass of data to be organized and compressed to readily usable size. It is a laudable attempt to perform a very difficult task and produce a work of widespread usefulness.

In some ways the book exceeds the subject indicated in its title. It includes a great deal of information about the animal food of wildlife, even going so far as to give space to discussion of the food of groups, such as hawks, owls and cats, that are completely carnivorous.

The body of the work is divided into three parts. Part I deals in a general way with the relations of wildlife to wild plants and farm crops, the methods used in food-habits studies by the Fish and Wildlife Service and related organizations in the United States, and the interpretation of the special symbols used in succeeding parts. In Part II detailed information about food habits of birds, mammals, fish, amphibians and reptiles is presented in an arrangement organized about the wildlife forms concerned. This arrangement divides birds and mammals into convenient groups that correspond only in part to accepted systematic classification. The accounts of bird food occupy 170 pages, those of mammal food 60 pages, and those of fish, amphibians and reptiles together 5 pages. In Part III much the same information about plant foods of birds and mammals is reorganized about the plant forms concerned, including 290 genera.

The book is illustrated by numerous range maps, by diagrams showing ratios of plant food to animal food of various wildlife species throughout the year, and by attractive black-and-white drawings, chiefly by Walter A. Weber and John W. Brainerd.

The shortcomings of a great and useful work are always a matter of regret, but cannot be overlooked. One of the most serious in the book under review is the attempt, despite the broadness of the title and the availability of additional information, to restrict the data and discussions to the continental United States. This necessarily reduces the use that can be made of the book, especially in other parts of North America. It produces partial or fragmentary accounts of many specific food relations, merely because important parts of the ranges of the species dealt with lie outside the boundaries of the selected nation. It is interesting to observe that in some instances, in which adequate data from the United States were lacking or impossible, the authors have yielded to the temptation to include information from north of the border. This is the case, for example, with the records given for spruce grouse, Franklin's grouse, Hudsonian chickadee, and the summer foods of various shorebirds. The brief discussion of the raven, on page 134, appears to confuse the United States with the continent.

The food-habits data used are obtained chiefly from the records of the Fish and Wildlife Service (including those amassed by its predecessor, the Biological Survey), from state conservation departments and from Cooperative Wildlife Research Units. The results of both field observations and laboratory studies are used. Although the body of data thus summarized is the greatest of its kind in the world, it is still deficient at many points. It is surprising to learn that reports of examination of only 12 stomachs of the brown creeper and three stomachs of the indigo bunting were available. It is unfortunate that information to be found in ornithological and mammalogical literature was not used more extensively, with a view to making this compendium as complete as possible.

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The range maps are not as good as they should be. While they undertake to depict summer range and winter range (in the United States), they make no attempt to show range during migration, or transient range, which is a substantial part of the range of many species and may include important relations between those species and plants. This results, for instance, in a map showing that Harris's sparrow winters from Nebraska to Texas, but not indicating that it occurs in the United States north of Nebraska. The map conveys no hint that this sparrow has a breeding range, since that part of its range is entirely outside the United States. Casual examination shows that, with respect to the State of Maine, the range maps are often at variance with established knowledge. Maps for the black duck, ring-necked duck, horned lark, Baltimore oriole and Lincoln's sparrow may be referred to in this connection.

In the text also there is, here and there, an obvious error, such as the reference on page 18 to bobolinks wintering in the southern rice fields of the United States and the statement on page 79 that the little blue heron "is widely distributed in the United States, breeding in the North and wintering in the South".

Despite its various defects, this book does so much to render a great body of valuable information readily available and to indicate gaps that need to be filled that it will be widely sought and used. It should be in the possession of every North American scientist in the fields of wildlife, botany, forestry and ecology and of every thoughtful and intelligent person interested in those fields, as a nature student, a sportsman or otherwise, and should be available in all libraries providing service to members of the public.

HARRISON F. LEWIS.

* * *

All Down the Valley

by Henry Billings

(Macmillan, Toronto, $4.00)

This was a book I approached with pleasurable expectation. I had heard a good deal of the Tennessee Valley Authority, but knew little of it and was eager and willing to know more. For some reason, and I find it hard to say just why, I was disappointed. The history of the Tennessee Valley and of the project, the details of planning and construction, statistics showing what had been accomplished, not only in industry but in terms of human relationships which are so much more important, all this is in the book. There are good maps to make the matter clear, though no index, which is a pity; there are interesting and comprehensible sketches, but the one thing necessary above all these is lacking. That one thing, I feel, is an attractive style, the style that makes one eager for more, the "'can't put the book down" kind of writing. I put the book down many times, and more than once thought of abandoning it completely. I could still be interested in a good book on the T.V.A.

DOUGLAS LEECHMAN

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Maps and Diagrams

by F. J. Monkhouse and H. R. Wilkinson

(Methuen, British Book Service, Toronto, $5.00)

Some of the greatest problems facing the geographer today are those of presenting the results of research in suitable map and diagram form. This book should be an invaluable aid in helping to solve such problems as well as a stimulus to the more frequent use of cartographic illustration.

Maps and Diagrams is essentially practical. The first chapter, for example, on Materials and Techniques, deals with such things as instruments, inks, scales, symbols, colour, lettering and that hazard of the compiler—reduction and enlargement. Theoretical topics on such subjects as map projections have been omitted, although each of the final four chapters briefly discusses the nature of the data to be mapped so as to provide the all-important mental attitude to the problems being reviewed.

Maps and diagrams of relief, climate, economic data, population and settlements are all scrutinized in detail so that there is material here for the specialized as well as the general student. The illustrations in the book, numbering about 200, are themselves a valuable contribution, to which reference is facilitated by the excellent index.

NORMAN L. NICHOLSON

* * *

This is Alberta

by K. E. Liddell

(Ryerson Press, Toronto, $4.00)

Despite literary faults, perhaps not unexpected in a book whose origin lies in the columns of a daily newspaper, *This is Alberta* deserves its title. The book is without form. It jumps frequently and disconcertingly from one subject to another quite unrelated. (We hope no one will draw the wrong conclusions from an aside, concerning the high production of Edmonton's meat-packing plants, that is interpolated into a discussion of the famous buffalo herds of Elk Island National Park.)

Nevertheless the conversational manner and casual atmosphere lend themselves to the subject. Never quite deciding whether to be travelogue or history, the book remains neither, but it succeeds in relating Alberta's optimism for its future to the pioneering spirit of its past, thereby expressing something fundamental in the character of the people.

One of the aspects of Western Canada most surprising to the outsider is the recency of its history. In Alberta the turn of the century was a pioneering period and there are many persons still living who recall the earliest days of settlement. Ken Liddell's rambling journey is liberally spiced with local colour drawn first- or second-hand from the pioneers, all of whom were rugged individualists. The collection and publication of these tales before it is too late is an important public service. In this case they give flavour and pungency to a work that is vastly, though somewhat miscellaneously, informative. Either tourist or native Albertan should find this both interesting and entertaining.

WALLACE R. JOYCE

* * *

Seaside England

by Ruth Manning-Sanders

(Clarke Irwin, Toronto, $3.00)

A trip to the seaside is to the Briton what the use of a summer cottage is to a resident of Ontario or Quebec. It is a habit that spreads rapidly and once acquired is unshakable. Considering the tribulations involved when "the seaside" first became the vogue it is astonishing that it became a national custom, for the idea of bathing for pleasure was never contemplated in the early days. In the eighteenth century bathing in the sea was regarded as curative and it began to take the place of the inland spas that had enjoyed great prosperity. The bathing itself was no mere frivolous affair for sturdy "dippers" dunked the patients vigorously under water, head and all, till they could stand no more. This was by no means the worst part of the cure, for sea water was considered as efficacious inside as out and a pint would be drunk each hour for three or four hours at a stretch. This cult reached such proportions that physicians would prescribe twenty-five gallon courses of sea water, to be taken a pint at a time. A strong propaganda campaign was put on by the physicians to popularize seaside resorts, each extolling the particular "saline effluvia" of the place he was interested in.

So the resorts developed, first as an offshoot of the mineral spas for the wealthy and fashionable, reaching their culmination with patronage by royalty, and finally as places for recreation and the enjoyment of bathing by the multitude.

It is unexpected to learn that while "mixed bathing" was not acceptable in Victorian times, and the immodesty of bathing costumes rouses spasmodic outcry in our own times, in the eighteenth century mixed bathing was the normal procedure and it was not considered necessary to wear anything. And though women soon took to enveloping themselves in voluminous robes it was not till the second half of the nineteenth century that men had to be covered in any way.

This is some of the lore that Mrs. Manning-Sanders has gathered and there is much more, with interesting accounts of the development of some of the best known English seaside resorts. Quotations from contemporary writers interpolate the text and illustrations from photographs, paintings and old engravings add flavour. Anyone who has "been to the seaside" will find much of interest in this book.

M. FELTON

* * *

The North-East Lowlands of Scotland

by John R. Allan

(Ryerson Press, Toronto, $4.00)

The Lowlands country described in this book is no more than the border of counties along the North Sea and the Moray Firth — Kincardine, Aberdeen, Banff, Moray, Nairn, Inverness, Ross and Cromarty, Sutherland and Caithness. The author explains that part of each of his counties belongs to the Highlands, but his real concern is with the narrow belt of farmland between the hills and the sea. Not that these self-imposed limitations hamper him in what was obviously a labour of love. A farmer and journalist whose people had farmed for generations in Aberdeenshire, he knows intimately every aspect of it from Northesk to John o' Groats. In many eloquent passages he paints its austere beauty and tells the splendid story of the men and women whose work during the last two hundred years made a rough countryside one of the best-farmed parts of Britain.

One meets many famous names throughout the book, not only of artists and writers, but also of leaders in agriculture and fisheries and of sturdy innovators in education whose influence has been felt on this side of the sea. In his descriptions of the social life of town and country, the shows and meetings, golf and poaching, Mr. Allan tells many delightful stories intermingled with passages of sound philosophy, and frequently one is brought up short by some delicious bit of irony or a particularly apt Scottish phrase. (He is an iconoclast when it comes to the bagpipes and even pokes fun at the kilt.)

The Aberdeen chapter celebrates the perseverance and labour that made a small northern seaport into a big city of nearly 200,000 people. A student at Aberdeen University, his descriptions of the city and its environs, its famous characters, and stories of student days are enthralling. Scarcely less so are the chapters on the fishing communities whose heroic work in those wild northern waters has built up a great industry.

The songs and ballads characteristic of the counties form a most engaging and quotable chapter, followed by a vivid glimpse of the superstitions and witchcraft whose strong influence on the lives of the people in earlier times is not altogether eliminated among their practical descendants. This Mr. Allan calls "The dark side of the moon".

An immensely readable book, one to own and share with kindred spirits, its value is enhanced by many illustrations from beautiful photographs, a good folding map and an excellent index.

F. E. FORSEY

* * *

Study of an African Swamp

by Frank Debenham

(London, Her Majesty's Stationery Office, 1952, U.K. Information Office, Ottawa $4.50)

This unusual publication of the British Colonial Office is something like a Canadian Government Technical Memoir and something like a Royal Commission Report. Yet it is much more personal and human than either of these. It is essentially the report of the Cambridge University Expedition to Northern Rhodesia in 1949, which had a threefold objective — to determine the cause of flooding on the western side of the Bangweulu swamp and suggest ways of reducing this

hazard; to survey the potential navigation routes through the swamps and to investigate the food producing potentialities of the grasslands bordering the swamp.

The account does nothing to mar the world-wide reputation which the author has earned in the field of physical geography. Its structure appears, at first sight, to be very simple with chapters devoted to the narrative, the watershed, the river, the swamp and its parts, an account of swamp vegetation and an assessment of the future of the swamp. But each chapter also includes accounts of the people and the flora and fauna so as to gradually build up a complete geographical picture of the region. Much of this was written with a wry sense of humour, as in the explanation of the burning of natural grasses "which has been carried out by the natives for generations, partly, . . . it would seem, because a good expansive fire pleases the native mind"!

So that quite apart from its use in solving specific problems in a corner of the world remote from Canada, *Study of an African Swamp* can be read as an absorbing adventure story or used as an excellent example of the technique of writing a geographical report.

NORMAN L. NICHOLSON

* * *

The Nature of Natural History

by Marston Bates

(British Book Service (Canada) Ltd., $3.50)

Where Winter Never Comes

by Marston Bates

(S. J. Reginald Saunders and Co., Ltd., $4.75)

Dr. Bates is concerned lest various fields of enquiry develop as "separate worlds" and that his fellow citizens lose sight of "the interrelatedness of things". These two books are an effort to ensure that this does not happen. While they are separate entities in themselves they naturally complement one another. *The Nature of Natural History* is in essence the writer's philosophy or attitude toward living things and at the same time a popular introduction to ecology. Brightly and interestingly written it takes us through the naming of organisms, their history, species, genera, families and a host of other botanical-zoological-geological topics which seldom form the basis of a book so entertaining and yet so enlightening. There is a chapter on biological geography which almost becomes a geography of population but not quite, for man is given no consideration. Indeed, if this book has a fault it is that Dr. Bates' natural history is a little lop-sided. This is borne out by a glance at his list of references which, although including some sixty items, omits such important texts as Klages *Ecological Crop Geography* and Graham's *Natural Principles of Land Use*, for example.

Where Winter Never Comes is an example of the application of the author's principles to a particular portion of the earth's surface, in this case, "the Tropics". Here, the prime consideration is man — "a study of man and nature" — and hence it is the more geographical of the two books. None of geography's essential elements is overlooked for "the element of history", population composition, climate, flora and fauna, soils, tropical seas, political responses and all the various interrelationships are included. But, in addition to being generally sound geography, the book raises several controversial issues. It professes to be "anti-Huntington", for instance, and develops the theme that many of the obstacles to progress in the tropics stem from the cultural environment rather than from the climate. Thus the writer challenges the concept that the temperate climate is the optimum one for human progress. He maintains that tropical soils are capable of producing significant amounts of the world's food, that tropical disease conditions are, in part, the result of poverty and that the white man's inability to compete with the native on equal terms is due to excessive dependence on European-type dress, diet and shelter.

The terminology and expression with regard to climate and climatic systems strikes a rather old-fashioned note in places. If Koeppen was read, he was certainly not understood. But it is gratifying to find a biologist listing over a dozen works by geographers in his references, making such good use of maps and diagrams and writing such a stimulating and readable rebuttal to traditional views on the tropical environment. It is this that will undoubtedly make *Where Winter Never Comes* more popular than *The Nature of Natural History*.

NORMAN L. NICHOLSON

Economic Geography Manual

Second Edition

by Nels A. Bengtson and Vera E. Rigdon

(Prentice-Hall, Inc., New York, 1952, $4.35)

This is the second edition of the popular manual first published under the same title in 1937. Like the first edition, it is made up of some forty-five exercises each of which consists of a number of related questions or simple problems which can be answered on the pages themselves. While these exercises are designed to "encourage careful reading" of the latest edition of the textbook by the same authors, each is more or less independent of the other thus permitting flexibility of use.

The second edition differs from the first in that the pages are perforated so that they may be easily detached from the binding of the book. The quality of the paper used has also been improved and the statistical appendix enlarged and brought up to date. An innovation is the addition of a list of special problems at the end of each exercise, "designed to stimulate independent thinking", which may be used either as individual or group assignments. Greater emphasis has been placed on matters of current importance such as the conservation of natural resources and international problems of resource use. The simple, but effective, black-and-white maps and diagrams include an outline map of the climates of the world and a number of blank graphs on which climatic data can easily be plotted.

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NORMAN L. NICHOLSON

* * *

The Mandarin Duck

by Christopher Savage

(Macmillan, Toronto, $5.00)

The Mandarin, probably the most beautiful of all ducks, is rival led only by our own Wood Duck and the news of its threatened extermination in its native lands, China and Japan, will come as a shock to all interested in birds, whether from the scientific or the aesthetic point of view. In its own country, the Mandarin is considered a symbol of constancy and fidelity and it does indeed seem to be a strict monogamist and the birds appear to show much affection for each other. Its extermination, if this does indeed come about, will be attributable, not to Chinese or Japanese appetites as the ducks are fortunately not particularly tasty, but to the insensate wars that people wage, disturbing the restricted breeding grounds, for the Mandarin is most particular in its choice of nesting sites and the areas it finds suitable are few and small.

Luckily, attempts to introduce Mandarins into England have been successful though here too suitable breeding places are restricted both in number and in area. However, several flocks now seem to be well established and are increasing. It is these birds that have afforded Christopher Savage an opportunity of studying them in detail and also of securing some excellent photographs which, together with reproductions of early Chinese and Japanese pictures, add greatly to the beauty and value of a book which every ornithologist will wish to include in his library.

DOUGLAS LEECHMAN

* * *

O Rugged Land of Gold

by Martha Martin

(Macmillan, Toronto, $3.75)

When I first began to read Martha Martin's book I was, I must admit, a bit dubious. We have all been fooled before with such concoctions as *Mrs. Mike* and *The People of the Deer*, but as I read on I failed to find any evidence of fabrication and the whole story hung together. Since then I have discussed the book with a number of people who live in the bush and who would have been quick to pounce on any flaw or slip that would suggest that this was a work of fiction rather than a record of fact and they were all in accord in accepting it as a truthful account.

This being the case, it seems safe to say that this is a most remarkable record of a quite unusual and overwhelming experience. Left alone on the coast of Alaska during her husband's unavoidable absence, the author suffers a broken arm, a seriously injured leg, and, to make matters still worse, finds herself pregnant. How she survived and had her child and how she maintained them both through the Alaskan winter is told without sentimentality, but with all the emotion and feeling to be expected in such a serious predicament.

Mrs. Martin's background is a little difficult to reconstruct for, though she likes to describe herself as a trapper and occasionally lapses into bad English, she also quotes Ceasar's Gallic War. Then, too, she uses quite unfamiliar words such as darnicks, larny, and sugan. Eric Partridge in his *Dictionary of the Underworld* says a sugan is a blanket, so at least one point is cleared up. Nevertheless, no matter what and where she was before she saw Alaska, she is undoubtedly a woman of indomitable courage and amazing resourcefulness and greatly to be admired. Hers is a book that very few will regret reading.

DOUGLAS LEECHMAN

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Britain and the Dominion

by W. R. Brock

(Macmillan, Toronto, $3.50)

This book is the history of an idea—the idea of "The Commonwealth". By recounting the experiences of the different countries of this unique political association the author shows how self-government evolved in each of them and how it has become possible for them to retain the common link with the Crown. Attention is also given to the colonial dependencies of Commonwealth countries, particularly those which are themselves in sight of independence. The book is in four parts. The first sets the stage for the other three. It traces the rise of Britain as a world power up to 1763 by outlining her early overseas expansion, the development of economic theories and the evolution of the British political system. Part II ends with the middle of the nineteenth century, Part III deals with the remainder of that century and Part IV with modern events. Each successive part diverges further from the general story as the separate parts of the Commonwealth demand separate and more lengthy treatment, yet the sense of unity is preserved. In other words, the author has achieved his purpose.

In developing this theme, however, Dr. Brock has not merely confined his attention to constitutional processes. Indeed, to try to do so would have been almost impossible for economics, geography and sociology have all played significant roles in the story. The result is a highly readable and absorbing work. The application of the historical or chronological method gives a remarkably well co-ordinated picture, for any point of time, of events in many different parts of the world.

The illustrations in the book are one of its most interesting aspects. They include well reproduced photographs of historical scenes and events, Commonwealth personalities, past and present and some modern geographical pictures. The diagrams are also well executed and are clear, stimulating and dynamic. But the maps, although clearly and simply reproduced, tend to be inaccurate and obscure in purpose. Several, such as the one of New Zealand, are completely without a title or caption. It is also misleading, to say the least, to include Ottawa on the map illustrating the conquest of Canada for neither Ottawa nor its predecessor, Bytown, had any existence in 1759. More serious errors occur on the map entitled "Canada in 1837" which shows the eastern boundary of Lower Canada in the position established in 1809 instead of that established in 1825, some 300 miles further east; assigns the coast of Labrador and Anticosti Island to the Hudson's Bay Company (incorrectly labelled the Hudson Bay Company on the map) when these areas should have been "attached" to Newfoundland and Lower Canada and shows a Red River settlement covering a much greater area than was actually the case in 1837. The double page map purporting to show "The growth of the Dominion of Canada" has other inaccuracies. The more obvious are a Yukon Territory extending into Alaska (in fact the Alaska boundary is entirely omitted); a "Mackenzie Territory" which has never ex[illegible] an 1870 Manitoba whose areal extent is [illegible] great. Such maps as these a[illegible] for, apart from the title, the [illegible] book is in complete keeping [illegible] statute of Westminster and t[illegible] Declaration and consequently [illegible] wide appeal among Canadians.

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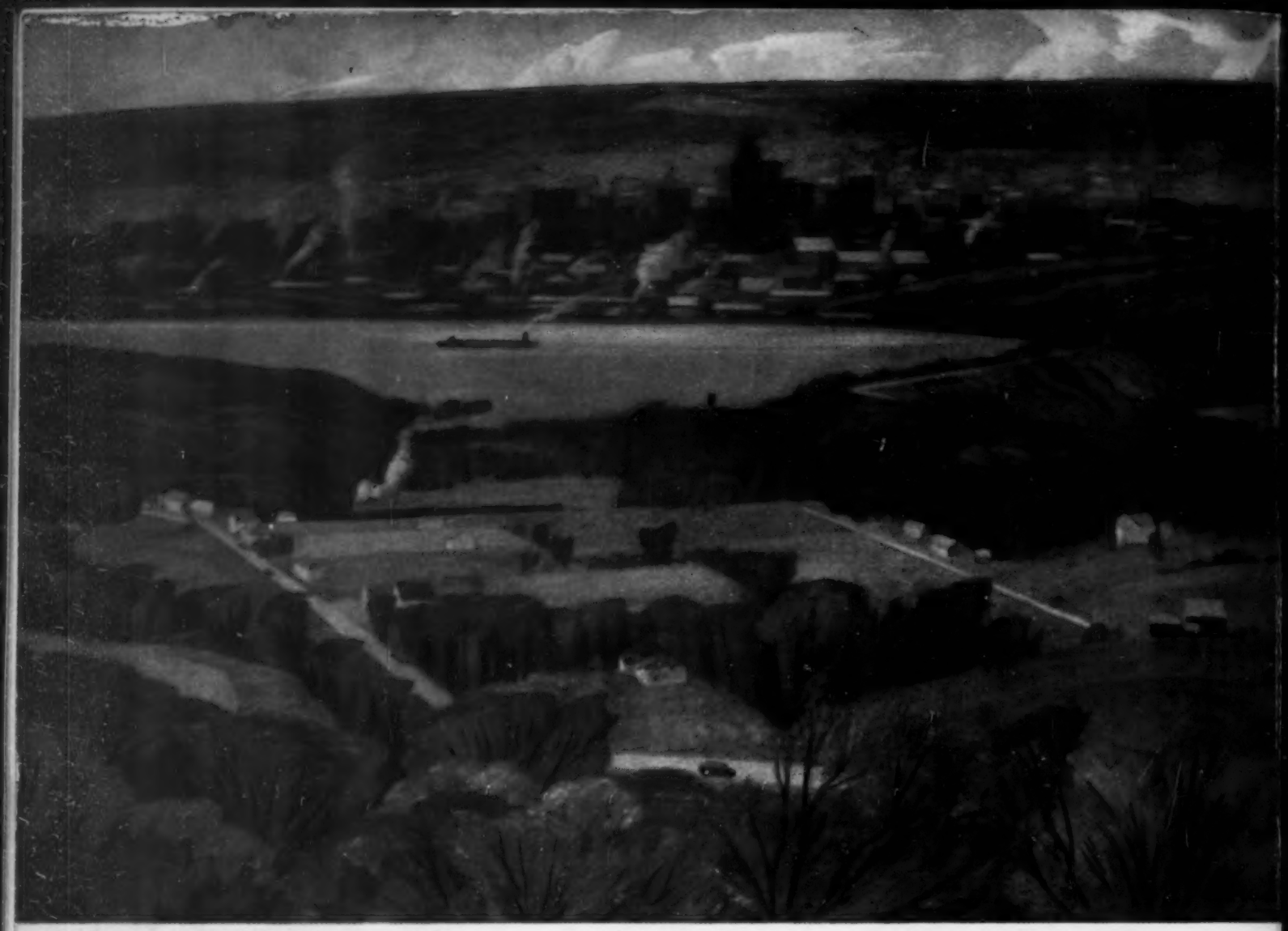

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